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ABSTRACT

Two reports of student nonpersistence at the University of Maryland, College Park (UMCP), are provided, taken from the Maryland Longitudinal Study. The first study, which examined four questions regarding students who become nonpersisters, found the following: nonpersisters had poor high school and first-semester study habits, were apt to have been in the bottom half of their high school class, were likely to live off campus during their freshman year, and were not able to consider their parents a major source of financial support; students were most likely to leave after receiving their final grades; financial considerations were the primary reason given for leaving; and students who left planned to become employed and eventually return to school. The second report evaluates the usefulness of the Astin Index (a statistical model for assessing "dropout-proneness") in predicting persistence among UMCP students. Results included the following: (1) statistically significant t-test results were found between black and nonblack female persisters and nonpersisters in those groups; (2) the Astin Index was far more accurate than chance in predicting retention 4 years after initial enrollment; and (3) items in the Index were found that contributed significantly to the prediction of persistence/nonpersistence 4 years after initial enrollment for nonblack males, nonblack females, black males and black females. The analysis of the Astin Index approach to the study of retention suggests that the limited inclusion of both non-cognitive and post-matriculation variables is a serious drawback to fully understanding persistence, especially among black students. The Astin Index instrument is provided. Data are provided in several tables and figures and in appendices to both reports. Between them, the 2 reports contain 25 references. (KM)

ED301103

MLS Research Highlights

Maryland
Longitudinal Study

Research Report #5

STUDENTS WHO BECOME
NONPERSISTERS: WHO, WHEN,
WHY, AND TO DO WHAT Fall 1987

Research Report #9

THE ASTIN INDEX: ONE APPROACH
TO PREDICTING PERSISTENCE AT UMCP
FOUR YEARS AFTER INITIAL ENROLLMENT Fall 1988

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Maryland Longitudinal Study Steering Committee
Division of Student Affairs
The University of Maryland College Park

MLS RESEARCH HIGHLIGHTS

Maryland Longitudinal Study

RESEARCH REPORT #5

STUDENTS WHO BECOME NONPERSISTERS: WHO, WHEN, WHY, AND TO DO WHAT

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Maryland Longitudinal Study Steering Committee
Division of Student Affairs
The University of Maryland College Park
Fall 1987

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STUDENTS WHO BECOME NONPERSISTERS: WHO, WHEN, WHY, AND TO DO WHAT

EXECUTIVE SUMMARY

The Chancellor of The University of Maryland College Park (UMCP) has stated that a goal of the University is the reduction of attrition. He has mandated that UMCP faculty and staff monitor their present programs and procedures in light of the goal of attrition-reduction, and devise alternative strategies and designs where warranted. The information contained in this report, derived from a longitudinal study of two groupings of students who matriculated at UMCP in the fall of 1980, has implications for the entire UMCP community: its students, parents, policy makers, academic departments, and student services.

WHO BECOME NONPERSISTERS

The report first discusses demographic characteristics which distinguish between students who remain enrolled at UMCP and those who become nonpersisters. Nonpersisters had poor high school study habits, and were apt to have been in the bottom half of their high school class. They reported weak first semester study habits. They were likely to live off campus their freshman year. They were not able to consider their parents a major source of financial support and had to find alternative sources of support. By spring of their first year at UMCP they thought it was fairly likely that they would drop out before they graduated.

WHEN

Students were most likely to leave after receiving their final grades. The greatest number of academic dismissals occurred at the end of their first year at UMCP. The greatest amount of dropout behavior occurred during or just after their second year at UMCP.

WHY

The reasons given by students for why they left school are a reflection of the pressures weighing on nonpersisters. For the Representative Group, financial considerations (e.g., inadequate financial resources; inability to manage the requirements of both work environment and courses) were primary reasons for leaving. Personal issues (e.g., illness or injury; uncertainty about personal goals; the desire to enter the military) also played a major role in the decision to leave, for the Representative Group. Financial considerations were primary for the Black Group as well, followed in importance by academic issues (e.g., low grades; inadequate study skills or habits). Academic dismissals accounted for an average of one third of the departure from UMCP of study participants across the years of the study.

TO DO WHAT

Students who became nonstudents planned, in the future, to become employed, and eventually to return to school.

Implications of these data for University policy-makers, faculty and staff, students, and parents are discussed and suggestions both for improving the quality of life and for retention strategies are made.

The Maryland Longitudinal Study (MLS) is a research undertaking of the Division of Student Affairs at The University of Maryland College Park. A significant number of Student Affairs staff have been involved in the study since its inception. A Steering Committee appointed by the Vice Chancellor for Student Affairs has been responsible for the methodology, data collection, and management of this project. These individuals are listed in Appendix A of the MLS report entitled: "The Maryland Longitudinal Study - A Descriptive Overview: The Study's Purpose, Goals, Features, Participants, and Design."

STUDENTS WHO BECOME NONPERSISTERS: WHO, WHEN, WHY, AND TO DO WHAT

I. INTRODUCTION

Attrition from higher education seems inevitable. It is considered to be a universal phenomenon, common to all types of institutions of higher education: public and private, two year and four year, college and university (Lenning, Beal & Sauer, 1980). The rate of attrition across institution types over the last four decades has been reported as stable (Mayhew, 1980; Tinto, 1981). Approximately 40% of all students entering college will not complete the bachelor's degree (Kemerer et al, 1982).

The rate of attrition at UMCP is typical of public institutions of comparable size. For example, between 1977 and 1982, the percentage of students who, four years after matriculation, either were still enrolled or had graduated was approximately 60% for white students and 45% for black students; fifth year enrollment/graduation rates were approximately 56% for white students and 36% for black students (UMCP Retention Committee Report, 1984).

Understanding why students leave college has become a subject of interest and concern to higher education administrators, educators, and researchers. Financial considerations are a large part of the problem for students. However, other factors are responsible for high attrition as well. While unrealistic expectations and a low degree of motivation may account for some dropout behavior, for a college or university to think that all degree-seeking students who leave college before graduation represent failure for the "dropout" has been described as naive and self-serving (Kowalski, 1977). For example, if conditions beyond the college or university of enrollment are more supportive of an individual's growth and development, then leaving to seek the more supportive environment is a positive step for the individual. It could, therefore, be considered a failure on the part of the institution when a student drops out **for reasons intrinsic to the institution,** as a result of its policies, poor resources, or unsupportive environment.

It is a goal of The University of Maryland to minimize attrition among its degree-seeking students. Understanding why students leave UMCP is crucial to altering institutionally based conditions which promote attrition. UMCP has no systematic way to distinguish between students who drop out of higher education and those who leave to transfer to another college or university. One of the purposes of the Maryland Longitudinal Study (MLS) was to supplement existing data by collecting and reporting on student-centered longitudinal data. These data provide insight into enrollment patterns of a large number of students who entered UMCP in the fall of 1980. They also provide access to the perceptions and experiences of students who left UMCP to transfer elsewhere or to leave the system of higher education entirely.

The focus of the present report is on students who left UMCP and did not transfer to another college or university. This report will first address the question of **who becomes a nonpersister:** are there characteristics shared more by students who become nonpersisters than by students who remain enrolled at UMCP? The report will then respond to three related questions: **when** does dropout behavior occur? **why** do students drop out of higher education? and **to do what?**

A. THE MARYLAND LONGITUDINAL STUDY

Before addressing these questions, a brief description of the Maryland Longitudinal Study's participants is in order. A full description of the study is given in Research Report #1, A DESCRIPTIVE OVERVIEW, which was written to be read in conjunction with this and other MLS research reports.

The Maryland Longitudinal Study (MLS) was a longitudinal study of over 700 individuals who matriculated at The University of Maryland College Park (UMCP) in the Fall of 1980 and from whom data were collected for the next five years, regardless of participants' subsequent enrollment status. This design permitted annual Spring semester data gathering contact with UMCP matriculants who remained enrolled at UMCP, with those who subsequently transferred to another college or university, and with those who dropped out of higher education altogether.

There were two groupings of individuals studied by the MLS: the Representative Group (N=468) and the Black Group (N=339). The Representative Group is a random sample of students who entered UMCP as first time freshmen in the Fall of 1980. This sample is a cross section of the larger freshman class from which it was drawn and as such is a representation of ethnic minorities at UMCP – including approximately 10% black students. **It is important to keep in mind, therefore, that this representative sample is not a "white" sample; rather, it reflects the ethnic diversity of the student body at UMCP.**

The Division of Student Affairs, which planned and carried out the longitudinal study, is concerned about the high number of black students who matriculate at UMCP and who drop out before graduating. Consequently, it has a strong interest in the collegiate experience of black students at UMCP. The number of black students in the Representative Group is a relatively small one (n=48): too small to be able to provide the basis for generalizations about the larger population of black freshmen the sample represents. Consequently, **all black freshmen at UMCP not included in the Representative Group were invited to participate in the MLS.** Those who agreed to participate became part of the Black Group. In addition to these students, data from black students in the Representative Group were also included as part of the Black Group's data for analyses.

B. DEFINITIONS USED IN THIS REPORT

The categorical nature of the term "nonpersister" requires a careful consideration of its operational definition. In this report, **the term NONPERSISTER refers to MLS participants who were not enrolled either at UMCP or at any other college or university at the time of their last MLS contact and who had not graduated from UMCP by 1985 – the fifth year of the study.** This term excludes individuals who discontinued enrollment for a semester or more and then either returned to UMCP or transferred to another college or university. It includes, in addition to individuals who gave MLS data every year of the study, those who were classified as a nonstudent at an annual MLS contact and who at the time of the next annual data collection either declined further participation with the study

or were uncontactable by MLS. Consequently there may be some individuals considered as nonpersisters who unknown to MLS subsequently enrolled at another college or university after leaving UMCP.

The term PERSISTER refers to MLS participants who were still enrolled at or had graduated from UMCP at the time of the data collection in the Spring of 1984 - the fourth year of the study.

The present report is based on information given by PERSISTERS and NONPERSISTERS annually in face to face interviews, standardized instruments, and written questionnaires. The issue of transfers is discussed in MLS Research Report #4: STUDENTS WHO TRANSFER FROM UMCP: WHO ARE THEY? WHY DO THEY LEAVE? WHERE DO THEY GO?

The number of males and females in the Representative and Black Groups categorized as persister or nonpersister is shown in Table 1.

TABLE 1

Sex of individuals in the Persister and Nonpersister Categories, for the Representative Group and the Black Group

	Representative Group		Black Group	
	Persisters	Nonpersisters	Persisters	Nonpersisters
Males	146	21	50	19
Females	151	28	87	33
Total	297	49	137	52

II. WHO BECOME NONPERSISTERS?

The freshman year is a year of transition. Some students graduated from a small high school, some from a large one. Some did well academically in high school; others were in the bottom half of their class. Some come from households where a college education was not only an expectation, it was a parental memory; others do not. Some come to The University of Maryland because it is their first choice; others would rather have gone elsewhere. For some, tuition and expenses are not a major concern. For others, their tenure in college is dependent on their ability to fund themselves. Some students commute, and juggle family dynamics, perhaps employment, the daily commute, and academic and nonacademic commitments. Others move into a residence hall on campus, and are confronted with issues of interpersonal interactions and with being on their own, often for the first time.

Each enters college as a freshman with expectations, motivations, interests, and abilities. Some stay until they graduate; others do not. In order to identify correlates of the decision to become a nonpersister, this section will investigate a number of prematriculation and postmatriculation characteristics which the retention literature has shown to be related to academic persistence/attrition. Both similarities and statistically significant differences (i.e., at a.05 level of significance using the chi square statistic) between persisters and nonpersisters will be described.

A. PREMATRICULATION CHARACTERISTICS

The term "prematriculation characteristics" refers to behaviors and conditions which occurred before the student entered UMCP as a freshman in the fall of 1980. These characteristics are categorized as demographic, academic, and financial factors.

Demographic factors: response frequencies for the following factors appear in Appendix A.

Sex. Sex has not been shown to be significantly related as a primary variable to retention or attrition (Lenning, Beal & Sauer, 1980). MLS data substantiated this observation. There were no significant differences in the proportions of persisters and nonpersisters among males and females in either the Representative or the Black Group. Both males and females were equally likely to remain enrolled at UMCP or to drop out of school.

Age at matriculation. Retention literature (Lenning et al., 1980) has shown conflicting evidence on the role of age at matriculation in attrition. There were important differences between persisters and nonpersisters in age at matriculation at UMCP, but only in the Representative Group. Most of the persisters and nonpersisters were 18 at the time they entered UMCP as freshmen. However, in the Representative Group, there was more age variation among nonpersisters than among persisters. That is, students were more likely to become nonstudents who were above or below the age of 18 at the time of matriculation.

Ethnic background. Retention literature (Lenning et al, 1980; Nettles, Gosman, Thoney, & Dandridge, 1985) also shows conflicting evidence concerning the effect of ethnic background on continued enrollment in higher education. Although there was a trend in the Representative Group indicating that students were more likely to become nonpersisters if their ethnic background was other than white American, the trend was not statistically significant. Ethnic background alone is not a correlate of attrition.

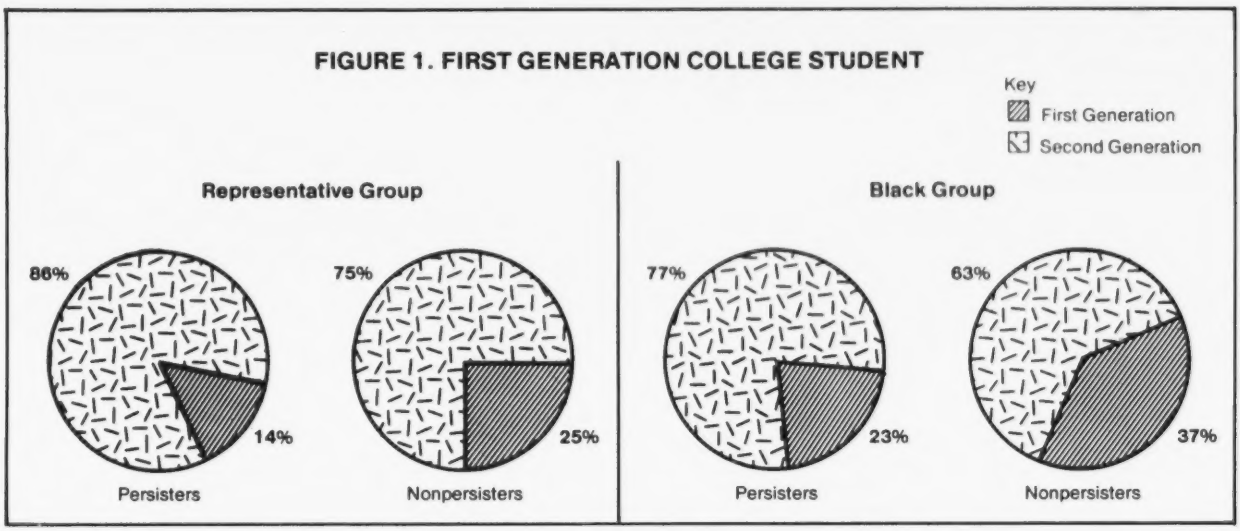
Parents' level of educational attainment. A major longitudinal study published in the mid 70s (Astin, 1975), described dropout-prone freshmen as having relatively uneducated parents; a study published two years later (Pantages and Creedon, 1978) found no such relationship between parental education level and attrition. MLS data showed no statistically significant differences between persisters and nonpersisters in either the Representative or the Black Group in terms of father's level of educational attainment. It is important to note, however, the greater proportion of students whose fathers never earned a high school degree among nonpersisters than among persisters. This is true for mother's level of educational attainment as well, and here the differences are statistically significant.

First generation college student. A first generation college student is one whose parents have never attended college. There were more first generation college students among nonpersisters than among persisters in each group. Having at least one parent who had had some college experience – and this does not necessarily mean having earned a baccalaureate degree – seems to be related to a student's persisting at UMCP.

High school rating. There were differences in both the Representative and the Black Group between persisters and nonpersisters on their perception of their high school rating: more persisters than nonpersisters rated their high schools as better than average. These differences were statistically significant in the Representative Group but not in the Black Group.

Size of high school graduating class. Retention researchers (Astin, 1975; Cope, 1972) have observed a relationship between the size of one's high school, the size of one's college, and persistence. Students from a small high school persist more successfully at a small college campus, and students from a large high school persist more successfully at a large college campus. However, MLS data suggested that high school graduating class size was unrelated to persistence in col-

FIGURE 1. FIRST GENERATION COLLEGE STUDENT



lege. While there were slightly more nonpersisters among those whose graduating class was less than 100, and slightly more persisters among those whose graduating class size was 700 or more, the differences were not significant in either group.

Reasons for wanting a bachelor's degree. Persisters and nonpersisters in the Representative and the Black Group had similar reasons for wanting to earn a baccalaureate degree: to help them later in their career. Between 65% and 70% of the persisters and nonpersisters in each group identified career-related factors as their reason for earning a degree: "college grads get better jobs;" "a college degree is the only way I can enter my chosen career;" "college grads earn more money;" "I must have a degree to enter graduate or professional school." The second most selected reason for earning a college degree was intellectual: "I am interested in ideas and the pursuit of knowledge." Least popular were interpersonal reasons: "my parents/relatives expect me to;" "the opportunity to meet and know many different people;" "to gain experience from extracurricular activities."

Reason for choosing UMCP. The reason for choosing UMCP differed between persisters and nonpersisters in the Representative Group. Approximately equal proportions of persisters and nonpersisters chose UMCP because of its geographical location or its academic programs. However, UMCP's relatively inexpensive cost was the main reason for one in four persisters in the Representative Group, while nonpersisters were more likely to select reasons such as parental suggestion or that they hadn't been accepted by the college or university of their first choice. The latter reasons are extrinsic to UMCP and, as such, indicate an initial lack of engagement with UMCP.

Reason for choosing UMCP, as a variable, did not discriminate between persisters and nonpersisters in the Black Group. Individuals in both categories had similar reasons for choosing UMCP: its programs, its geographical location, or its relatively inexpensive costs.

Academic factors: response frequencies for the following factors appear in Appendix B.

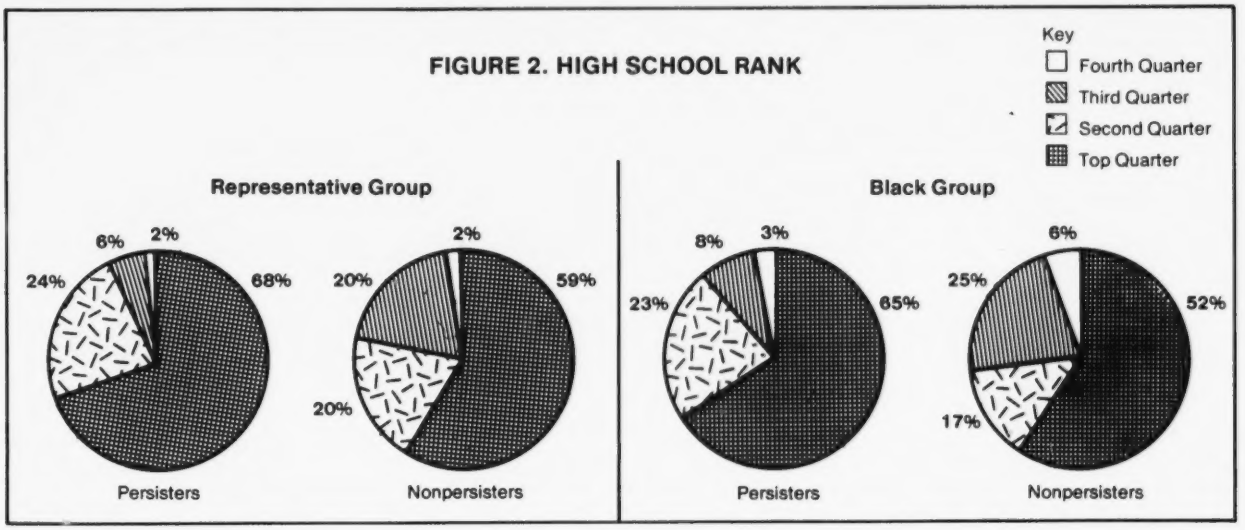
Grades in high school and high school rank. It has been asserted that academic performance in high school accounts for at least 50% of the variance in predicting academic success (Pantages & Creedon, 1978). Although researchers (Lenning et al, 1980) have criticized the research methods upon which that statement was based, the literature has consistently supported a relationship between academic performance in high school and persistence in college. As might be expected, therefore, MLS data showed that there were differences between persisters and nonpersisters on academic performance in high school, in both the Representative and the Black Group. Significantly more nonpersisters than persisters reported low grades in high school, and a high school rank in the bottom half of their class.

Type of high school curriculum. Sometimes data are as helpful in disproving assumptions as in proving them. Interestingly, there were no significant differences between persisters and nonpersisters in the type of high school curriculum, in either the Representative or the Black Group. While more nonpersisters than persisters graduated from a general education program as opposed to a college preparatory program in high school, the differences were not statistically significant.

SAT scores. There have been conflicting opinions concerning the use of SAT scores as a reliable and valid predictor of academic success in college. Researchers and administrators are beginning to agree that high school performance is a better predictor than SAT scores of academic success. Nevertheless, MLS data show that in both the Representative and the Black Group, persisters scored significantly higher than nonpersisters on both the Verbal and the Math sections of the SAT.

High school study habits. Students' study habits in high school have been considered an important factor in academic persistence at college. The development of good study habits before matriculation at college can help considerably in the adjustment both to the institution's academic demands and to its lack of supervision. This finding was supported by MLS data. In the Representative Group, nonpersisters reported poorer high school study habits than persisters. As high school students, nonpersisters were less likely to have consistently turned in their assignments on time. They were more likely than persisters to have failed to complete homework. They were also more likely than persisters to have done extra credit work – perhaps in compensation for their poor record with assignments and homework. They were more likely than persisters to report having kept their desk or study place neat.

FIGURE 2. HIGH SCHOOL RANK



Nonpersisters were less likely than persisters to have studied alone while in high school, and also less likely to report having had trouble concentrating on their assignments. There were no significant differences between persisters and nonpersisters on the frequency with which they felt too bored to study in high school. Nor were there differences on whether they did their homework at the same time every day, on the frequency with which they made careless mistakes on tests, on whether they carefully went over diagrams and tables in the texts, or on whether they studied with the radio or TV on.

The tendencies in terms of study habits in high school seen in nonpersistars in the Representative Group were evident in nonpersisters in the Black Group as well. However, most of the tendencies were not strong enough to be statistically significant. The one exception was that nonpersisters were significantly less likely than persisters to have turned in their assignments on time. They were also inclined to be less consistent than persisters about completing their homework, although that difference was not statistically significant.

Financial factors: response frequencies for the following factors appear in Appendix C.

Personal income. Although there were more nonpersisters than persisters reporting personal income in brackets $4000 or above, persisters and nonpersisters in the Representative and Black Groups did not differ significantly on personal income earned in 1980.

Family income. There were significant differences in terms of family income between persisters and nonpersisters in the Representative Group with nonpersisters reporting lower income categories. This difference was not evident in the Black Group, where persisters and nonpersisters were equally represented across income categories. In both groups there were more nonpersisters than persisters who reported they did not know their family's income bracket.

B. POSTMATRICULATION CHARACTERISTICS

During the first annual MLS data collection (Spring of 1981), study participants were asked about their freshman year experiences, perceptions and subjective impressions of UMCP. The responses of persisters and nonpersisters were examined to see what postmatriculation characteristics were related to nonpersistence. Once again, these characteristics have been categorized as demographic, academic, and financial factors.

Demographic factors: response frequencies for the following factors appear in Appendix D.

Residence during the freshman year. Institutions with large commuter enrollments are reported to have high dropout rates (Kemerer et al, 1982). A look at place of residence during the first semester at UMCP shows a significant difference between persisters and nonpersisters in the Representative Group in the number of commuters as opposed to campus residents. Forty-one percent of the persisters lived on campus or in greek housing their first semester, as opposed to 28% in the nonpersister group. Nearly half of each group lived with their parents and commuted to classes. The remainder (8% of persisters and 19% of nonpersisters) had other housing arrangements off campus during that fall semester. By Spring 1981, the proportion in the Representative Group living on campus had increased to 57% for persisters and to 43% for nonpersisters.

In the Black Group, as well, there were significantly more residence hall or greek residents among persisters (57%) than among nonpersisters (39%) during, the Fall 1980 semester. Fifty-two percent of black nonpersisters lived with their parents, as opposed to 42% of black persisters. By the following spring, the proportion living on campus had increased to 70% for persisters and 54% for nonpersisters. In both groups, nonpersisters tended to have to commute longer distances to campus than did persisters.

Initial feelings about UMCP. In the Representative Group, more nonpersisters than persisters reported having had very mixed initial feelings about UMCP, and fewer nonpersisters than persisters reported having had very certain initial feelings. These differences were not evident in the Black Group, where persisters and nonpersisters reported mixed and certain feelings in similar amounts.

Problems during the transition to UMCP. In the Representative Group, adjustment to academics, and interpersonal issues, were most frequently cited problems during the transition to college, with persisters cit-

ing academic adjustment with most frequency, and nonpersisters citing interpersonal adjustment. In the Black Group, persisters and nonpersisters alike reported they had the most difficulty in the transition to college in adjusting to academics.

Fall semester: socially. Asked to rate their fall semester socially, over half reported doing better or much better than expected. However, in the Representative Group twice as many nonpersisters (18%) as persisters (9%) reported having done poorly socially their first semester. In the Black Group, there were no significant differences between persisters and nonpersisters on how the fall semester was socially: for 57% of both persisters and nonpersisters it was better than expected.

Source of friends. There were no significant differences in the source of friends in the Representative Group. Most of the persisters and nonpersisters had in common with their best friends at UMCP either the same dorm, or the same hometown or high school. In the Black Group, both persisters and nonpersisters found a major source of friends in the residence halls. A greater proportion of nonpersisters than persisters found friends in the same major, while persisters found friends in campus organizations in greater numbers than did nonpersisters.

Group most closely identified with. This variable showed no significant differences between persisters and nonpersisters in the Representative Group: high school friends, dorm groups, and informal groups on or off campus were identified with in similar proportions. Nor were there significant differences in the Black Group on this variable. Informal groups and dorm groups were the response categories selected by the greatest number of persisters and nonpersisters, followed for persisters by high school friends, and for nonpersisters by family, which may be related to the number of black persisters who lived with their parents their first semester at UMCP.

Degree of support experienced freshman year. Several models of student retention suggest that the degree of support perceived by the student as being supplied by or available from aspects of the university is a factor in the student's decision to persist or leave the university. To see if such a relationship exists at UMCP, MLS participants were asked to rate the degree of support or encouragement they experienced during the freshman year from their classes, faculty members, staff (administrators, counselors), advisors, and fellow students. Their responses along a scale of "almost none," "little," "some," "much," or "very much," indicate that UMCP was generally not perceived as very supportive in their freshman year by either persisters or nonpersisters in the Representative Group. Only about 10% of either persisters or nonpersisters reported having experienced much or very much support from their classes, or from faculty, with nonpersisters less likely than persisters to report having experienced faculty support. Persisters were slightly more disenchanted than eventual nonstudents by the degree of support experienced from staff people. And a disappointing 80% of the persisters and 77% of the nonpersisters reported having experienced "little" or "almost no" support from their advisor! Interestingly, however, nonpersisters were more likely than persisters to have experienced some support from their advisor. Fellow students were considered a source of support, particularly for persisters: only 6% of the persisters and 19% of the nonpersisters reported having experienced "little" or "almost no" support from their peers. The difference between persisters and nonpersisters in degree of support experienced from peers may be related to the higher number of commuters among the nonpersisters.

In the Black Group, a comparison of the responses of persisters and nonpersisters on the issue of support shows that while there were no statistically significant differences between persisters and nonpersisters on that issue, nonpersisters tended to have experienced support from their classes, and from their advisors in greater numbers than did persisters. There were minimal differences between them on the degree of support experienced from staff and from their fellow students, with few reporting "much" or "very much" support from staff, and most reporting having experienced at least "some" support from their peers. For a fuller exploration of the freshman year experience of residents and commuters, see Research Report #3: THE FRESHMAN EXPERIENCE AT UMCP: COMPARING COMMUTERS AND RESIDENT STUDENTS.

Degree of involvement freshman year. Degree of involvement in various aspects of campus life is considered to be an important factor in academic persistence. MLS participants were asked each year to rate the degree of their involvement with various aspects of the campus, using a five-point scale ("not at all involved", "slightly involved", "somewhat involved", "much involved", "very much involved"). Research Report #2: UNDERSTANDING AND INCREASING STUDENTS' SATISFACTION WITH COLLEGE discusses in greater depth the degree of involvement of MLS participants.

To see if the degree of involvement freshman year had an impact on a student's ultimate enrollment status, persisters and nonpersisters were compared on the degree of their involvement in various aspects of UMCP life. In the Representative Group, there were no statistically significant differences between persisters and nonpersisters in the degree of involvement in their formal academic experiences, although there were more nonpersisters than persisters who reported minimal involvement. Nor were there significant differences between persisters and nonpersisters in their interpersonal relationships with students, with faculty and staff outside of class, or with student organizations. However, more nonpersisters than persisters were "very much" involved with their work experience, which included experience with employer, fellow employees, and the work itself on or off campus.

In the Black Group persisters and nonpersisters reported significantly different degrees of involvement their freshman year in interpersonal relationships with other students, with fewer nonpersisters than persisters reporting such involvement. As with nonpersisters in the Representative Group, black nonpersisters were more involved in their jobs than black persisters. Very few persisters or nonpersisters in the Black Group reported having been more than slightly involved either in student organization experiences or with interpersonal relationships with faculty/staff.

Interaction with nonstudents freshman year. MLS participants were asked about the amount of time spent in interaction with nonstudents their freshman year. There were no significant differences between persisters and nonpersisters in either group on this variable, although nonpersisters were more likely than persisters to report having had such interaction, which is not surprising given the greater number of nonpersisters who lived off campus their freshman year.

Change in frequency of association with other races. Persisters and nonpersisters in the Representative Group practically mirrored each other in the degree of change in the frequency of their association with students from another race compared with when they first entered UMCP. Only about 28% of each subgroup reported more than a little change. In the Black Group, as with the Representative Group,there were

no significant differences between persisters and nonpersisters in the change in the amount of time spent in association with individuals of another race, although nonpersisters reported an increase in the frequency of cross-racial interactions to a greater extent (50%) than did persisters (39%).

Participation in campus activities or groups. Retention literature suggests that participation in campus activities or groups is related to persistence in higher education (Beal & Noel, 1979). MLS participants were asked to indicate in which of the campus activities and groups listed they had been active during their freshman year. In the Representative Group 59% of the persisters and 71% of the nonpersisters reported no active participation in any campus groups or activities. This difference, though pronounced, is not significant. In the Black Group the differences are slight, with 64% of the persisters, and 56% of the nonpersisters reporting no involvement in campus groups or activities.

Satisfaction with college and with life in general. Participants were asked in the spring of their freshman year about their satisfaction both with college and with life in general. Nonpersisters in the Representative Group reported significantly less satisfaction with college, and less satisfaction with life in general than did persisters. These differences did not appear in the Black Group, where few persisters or nonpersisters reported dissatisfaction either with college or with life in general.

Chances of dropping out or transferring before graduation. Since the literature (Lenning et al., 1980) reports that one of the best indicators of attrition is the answer to a direct question related to that issue, students were asked in the spring of their freshman year what they thought were the chances of their dropping out of school before graduation. Significantly greater proportions of nonpersisters than persisters in each group reported they thought there was a good or a very good chance of their dropping out before graduation! Asked what they thought were the chances of their transferring to another college or university before graduating, a greater proportion of nonpersisters than persisters reported a good or very good chance of that occurring.

Vocational identity. Do students leave UMCP in part because they have not yet developed their vocational identity? That is, they do not yet have a clear and stable picture of their goals, interests and talents. MLS participants were given MY VOCATIONAL SITUATION (Holland, Daiger & Power, 1980) each year of the study. This instrument tests the degree of one's vocational identity. The scores for persisters and nonpersisters in the freshman year show that in the Representative Group, persisters had a lower degree of vocational identity than did nonpersisters. These differences were nonsignificant. In the Black Group, persisters had a slightly higher degree of vocational identity. The lack of statistical significance makes it difficult to draw any conclusions about the role of vocational identity in the decision to leave college, other than that vocational identity as measured by the MVS appears not by itself to play a significant role in that decision.

Academic factors: response frequencies for the following factors appear in Appendix E.

Freshman year level of educational aspiration. Astin (1975) reported that there is a relationship between academic persistence and level of educational aspiration at freshman year, whereby students who wish to attain a degree beyond the bachelor's degree persist at higher rates than those seeking a terminal bachelor's degree. To test this relationship, MLS participants were asked in the spring of their freshman year to indicate the highest academic degree they planned to seek. Some evidence of a relationship between educational goals and persistence was found in the Representative Group, where a greater proportion of persisters (65%) than nonpersisters(51%) had plans to go on to graduate or professional school after earning their baccalaureate degree. In the Black Group the proportions of those planning education beyond the undergraduate degree were similar for persisters (77%) and nonpersisters (71%). It appears that having educational goals which involved further education beyond the bachelor's degree was not in and of itself sufficient to insure continued enrollment.

Fall semester: academically. A student's first semester at college typically is difficult academically largely because the student must make the transition from the expectations and demands of high school to the often more rigorous expectations and demands of higher education. This was true at UMCP, particularly for nonpersisters. Almost half (49%) of the nonpersisters and 39% of persisters in the Representative Group reported that they had not done as well academically their fall semester as they had expected to. In the Black

FIGURE 3. CHANCES OF DROPPING OUT

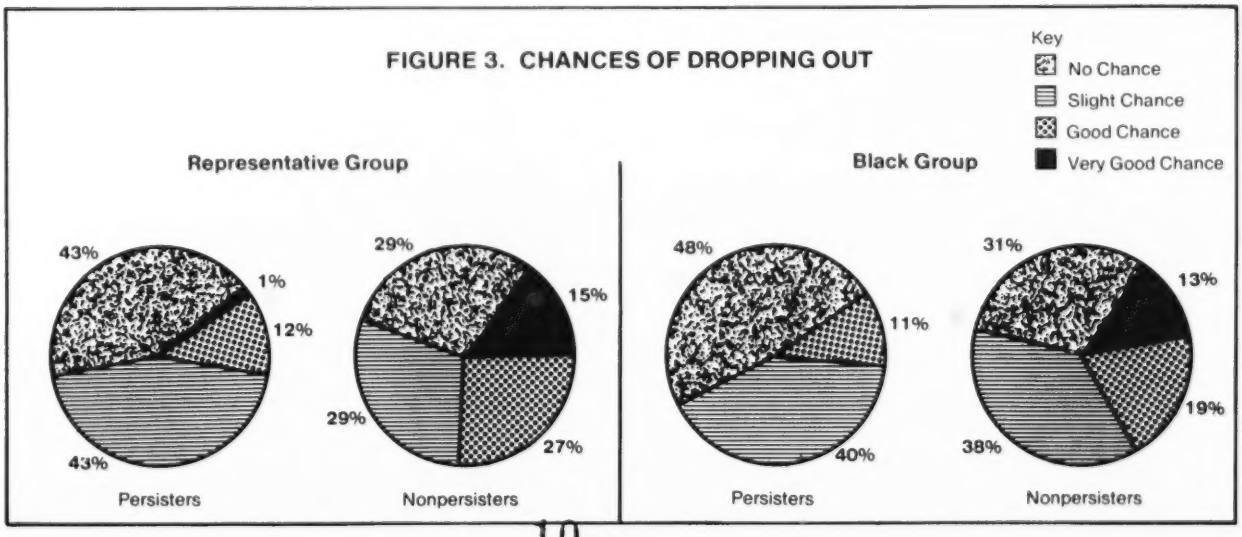
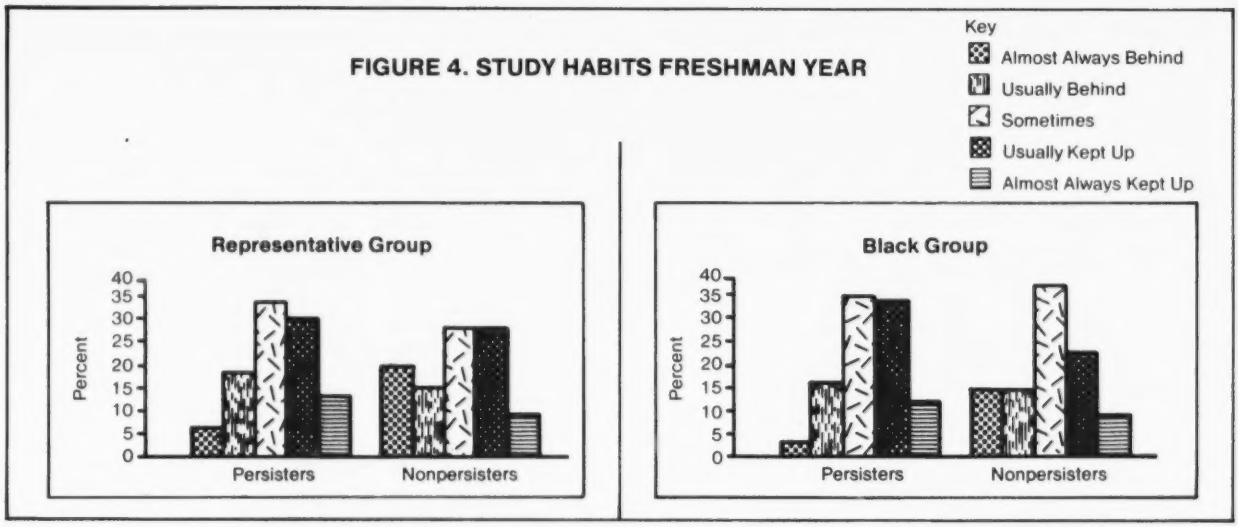


FIGURE 4. STUDY HABITS FRESHMAN YEAR



Group, as well, more nonpersisters (64%) than persisters (45%) reported having done worse than expected academically their fall semester.

Study habits freshman year. To ascertain academic adjustment during the freshman year, MLS participants were asked about their study habits, the degree of difficulty they had experienced with essays and objective tests and term papers, and whether they had sought tutoring. In both the Representative and the Black Group there was a significant difference between persisters and nonpersisters in study habits: nonpersisters reported being usually or almost always behind in reading assignments in far greater proportions than did persisters. In neither the Representative nor the Black Group were there significant differences between persisters and nonpersisters on difficulty with essays, difficulty with objective tests, or difficulty with term papers. Persisters were somewhat more likely than nonpersisters to have sought tutoring. In the Representative Group, 25% of the persisters and 20% of the nonpersisters reported having sought some tutoring, while in the Black Group, 40% of the persisters and 30% of the nonpersisters reported having done so. These differences are not statistically significant.

When decided on major. Persisters and nonpersisters in the Representative and Black Groups did not differ in when they decided on a major. Over 60% had made that decision while still in high school. It is interesting to note the high proportion of black students who had decided on their major before their senior year of high school: nearly half of the black persisters and slightly over one-third of the black nonpersisters had made that decision early. While nonpersisters were slightly more likely than persisters to have been undecided about their major in the spring of their freshman year, the differences were nonsignificant.

First year grade point averages. In both groups, persisters earned a significantly higher grade point average than did nonpersisters in the fall and spring semesters of their freshman year. Indeed, in both semesters, the grade point average for persisters was above 2.00, and for nonpersisters it was below 2.00, the minimum needed to graduate from UMCP.

Financial Factors: response frequencies for the following factors appear in Appendix F.

First semester employment. Astin (1975) found that part time work on campus was highly predictive of academic persistence. This relationship was not evident in the freshman year for MLS participants. More than half of the students in both the Representative and the Black Group had not been employed during their first semester. Among those who were employed, there was a slight tendency for nonpersisters to report having worked more hours than persisters. The difference, however, was not statistically significant. Nor were there differences between persisters and nonpersisters in work site (on or off campus).

Sources of financial support. Although there were no significant differences in number of hours employed during the fall semester, a markedly greater proportion of nonpersisters (33%) than persisters (16%) in the Representative Group reported that their wages or savings were a major source of financial support, while persisters reported their parents were a major source of financial support (72%) far more frequently than did nonpersisters (50%). In addition, more nonpersisters (27%) relied on scholarships than did persisters (13%). There were minimal differences in degree of reliance on loans as a major source of financial support between persisters and nonpersisters in the Representative Group.

In the Black Group differences between persisters and nonpersisters concerning sources of financial support did not appear. Although nonpersisters were slightly more likely than persisters to have relied on their own wages or savings, and/or on scholarships their freshman year, the differences were not significant. Equal proportions of persisters and nonpersisters relied on parents (51%) and/or on loans (34%).

C. THE INTERACTION OF PRE- AND POSTMATRICULATION CHARACTERISTICS

Up to this point, this report has examined prematriculation and postmatriculation variables one at a time to see what similarities and differences occurred between persisters and nonpersisters on these variables. **In order to understand relationships which exist among pre- and postmatriculation characteristics** discussed in this section, a discriminant analysis was performed. This analysis considered entered variables simultaneously and identified differences between scores of persisters and nonpersisters. The information generated by the discriminant analysis served as the basis for classifying students to either

the persister or the nonpersister category. The percentage of cases correctly classified on the basis of the variables entered was 85% for the Representative Group and 84% for the Black Group (see Appendix G).

The discriminant analysis presents information about the interactions of variables in such a way that, for each group, profiles are detected, both of students who eventually become nonstudents, and of students who persist at UMCP. The following profiles are based on the discriminant analyses performed on variables discussed in the first part of this report. (Variables included in the discriminant analyses were indicated with an asterisk in the response frequency tables located in Appendices A - F.)

Persisters in the Representative Group typically lived on campus their freshman year. They had parents who had had at least some college experience and who were a major source of financial support. Persisters' high school experience had been a positive one academically, with good study habits and good grades. In their first semester at UMCP they earned grade point averages greater than the minimum required for graduation. They found their classes and their fellow students to be supportive. By their second semester, they felt generally satisfied with college and with life, and saw little chance of transferring out before graduation.

Nonpersisters in the Representative Group, on the other hand, typically were commuters their freshman year. They had parents who hadn't had college experience and who were not a major source of financial support. Nonpersisters worked at jobs to help support themselves financially. Their poor high school study habits and lack of investment in their studies may have been conducive to grades in the bottom half of their high school class, and they carried their poor study habits to college, falling behind in their reading assignments. Their first semester academic performance was a disappointment to them, as they did much worse than they had expected to. While they found university staff a source of support, they experienced little support from their classes or their fellow students. They were heavily invested in their work experience. By the end of their freshman year they were dissatisfied both with college and with life, and thought their chances of transferring to another college or university were pretty high. Bear in mind, these were students who, after dropping out, did not return to higher education, at least during the years in which MLS maintained contact with them.

Persisters in the Black Group typically lived on campus their freshman year. They had parents with some college experience, and who were a major source of financial support. Persisters brought with them to college good study habits; they kept up with their reading in college and tended to seek tutoring where needed. They earned grade point averages their first semester at UMCP above the minimum needed for graduation. Although they didn't find their classes or their fellow students very supportive, they did find a source of support in university staff. Their out-of-class involvement with other students was considerable, most likely a benefit of living on campus. By spring of their freshman year they felt fairly satisfied with life and thought the chances of dropping out before graduation were minimal.

Nonpersisters in the Black Group tended not to live on campus their freshman year, but commuted daily, often from homes where their mothers had never been to college. Nonpersisters brought with them to college poor study habits and a low investment in their studies. They brought as well, educational goals which included a professional degree. Three of every four nonpersisters were 18 or older when they matriculated at UMCP in the fall of 1980. Parents were not a major source of financial support. Like black persisters, nonpersisters relied on scholarships for financial support. However, unlike black persisters, their first semester in college was an academic disappointment to them: as a group they earned fall grade point averages of 1.37. By their second semester they were generally dissatisfied with life and thought their chances of dropping out before graduation were high.

III. WHEN DO STUDENTS LEAVE?

The previous section reported data on MLS participants who fit the longitudinally determined classifications either of "persister" or of "nonpersister". **In this section and in the two following sections, the focus will be entirely on MLS participants who were categorized as "nonstudent" for the first time at an annual MLS contact.** Bear in mind that some of these participants categorized as "nonstudents" in a particular year were taking a semester or two off and ultimately either returned to UMCP or transferred to another campus: these individuals were not included in the longitudinally defined "nonpersister" category used in the first section of this report.

Year One: There were 21 students in the Representative Group and 18 in the Black Group who left school during their freshman year. Many of these students preferred not to respond to MLS questions about their decision to leave UMCP. Consequently the numbers aren't large enough to inspire confidence about the generalizability of the data concerning first year attrition. What the data suggest is that students had a tendency to leave after seeing their second semester grades. There was no particular person – such as a parent, friend, or UMCP faculty or staff person – with whom they discussed their decision to leave.

Year Two: During Year Two of the study (Fall of 1981 – Spring of 1982) 29 students in the Representative Group and 29 in the Black Group left school. Unlike their Year One counterparts, most of these students responded to questions about their decision to leave UMCP, which may in part be because they felt familiar both with their MLS interviewer and with the MLS data collection process. Half of the students in each group reported having first thought of dropping out of college at some point during their freshman year. Students in the Representative Group discussed their decision to drop out their second year with a parent (32%) or with a friend (36%). Very few discussed it with UMCP personnel. In the Black Group, students tended to discuss the decision either with a parent (42%) or with no one (29%). Students in both groups who left school during their second year tended to do so after seeing their final grades at the end of either the fall semester or the spring semester their sophomore year.

Year Three: In Year Three (Fall of 1982 – Spring of 1983) 19 in the Representative Group and 14 in the Black Group became nonstudents. In the Representative Group, less than one in five had not discussed their decision to leave school with anyone. Parents (42%), friends (27%) or spouse (8%) were their primary confidantes. Only 4% discussed the decision with their academic advisor. Black students were more inclined to keep the decision to drop out to themselves: 40% of those who dropped out in Year Three discussed their decision with no one. Those who did discuss it with someone else turned largely to parents (27%) or friends

(27%). The prime time chosen for departure from the university in the third year was after the end of the Fall 1982 semester. This was true for both groups.

Year Four: In Year Four (Fall of 1983 – Spring of 1984) 16 in the Representative Group and 11 in the Black Group became nonstudents. Unfortunately a number of the students in each group who became nonstudents that year did not respond to the question of when they actually left the university. Those who did respond to the question did not show any particular time for their departure: roughly equal numbers left during the summer prior to their fourth year, or between the fall and spring semesters in their fourth year.

(See Appendix H for a summary table of when students left UMCP.)

IV. WHY DO STUDENTS DROP OUT?

THE MOST IMPORTANT FACTOR IN THE DECISION TO LEAVE UMCP

Each year of the study, participants who had become nonstudents in that year – meaning in the time between the previous year's MLS contact and that year's contact – were asked to indicate which of several listed reasons for leaving had been the most important factor in their decision to leave UMCP. Their responses are recorded in Appendix I. The large amount of missing data on this question in Years I and III is unfortunate. It may represent the complexity of the decision to become a nonstudent; it may also represent a hesitation on the part of the nonstudent to share with MLS what went into the decision to leave. Because the numbers are so small it is difficult to make generalizations about types of reasons for leaving relative to the number of semesters or years invested in studies at UMCP.

Considering the reasons given across the years of the study (please refer to Appendix I both for a listing of the specific reasons and for an indication of the reponse frequencies), in the Representative Group, crucial in the decision to leave UMCP were financial considerations, such as inadequate financial resources, or inability to manage requirements of both work environment and courses. Also crucial, particularly for students leaving in Years Three or Four, were personal issues, such as illness or injury, receiving a job offer, uncertainty about personal goals, the desire to enter the military, uncertainty about the value of a college education, or a desire to travel. In the Black Group, financial considerations were the number one factor in the decision to become a nonstudent. This was followed in importance by academic factors, such as low grades or inadequate study habits or skills, and then by personal issues. Environmental pressures, such as pressure from family to leave school, or commuting distance, were not salient in the decision to leave school for either group.

ACADEMIC ACTION

The University takes academic action each semester against students whose cumulative academic performance is below that required by the University for continued enrollment. Appendix J presents the number of students in the Representative and the Black Group who were academically dismissed each semester. The greatest number of academic dismissals occurred at the end of Year One. Bear in mind that individuals who are academically dismissed can apply for reinstatement, and, once reinstated, if they are unable to raise their cumulative grade point average to the requisite level, can be academically dismissed a second time.

WHAT UMCP COULD DO DIFFERENTLY TO HELP STUDENTS STAY

To ascertain features about the University which might be contributing to attrition, students who became nonstudents were asked what the University could do differently to help students stay in school. The MLS questionnaire provided eight reasons and nonstudents were asked to circle all which applied. Their responses are sunmmarized in Appendix K. Nonstudents in both groups agreed that more financial aid was needed. This suggestion is not surprising given the proportion of students in each group who gave inadequate financial resources as the most important reason for leaving UMCP. What may be more surprising, however, is the proportion (about 30%) who gave the response: require student contact with an academic advisor. Individuals who had become nonstudents felt the system of self-initiated advising contact was not sufficiently effective to prevent attrition. The low popularity of the response "make course requirements and grading procedures clearer" suggests that required contact with an academic advisor would respond to a need beyond that of clarification of the academic system: to have someone within the University system convey personal attention, caring, and guidance with the educational experience. Add to the perception of a need for required academic advisement, the perception that UMCP could reduce attrition by providing more opportunities for student/faculty contact, and it becomes clear that students who become nonstudents not only recognize the value of interaction with adult members of the University community, they see the absence of such interaction as being related to attrition from the University.

To see the attitude toward UMCP of students who had become nonstudents, these individuals were asked the following question: "All things considered, how do you view UMCP?" Their responses, in percentages, can be seen in Appendix L. The majority of responses indicated a favorable or neutral attitude toward UMCP. Very few students expressed a very unfavorable view. The proportion of positive to negative views for the Representative Group averaged 60 to 16 across the four years; for the Black Group the proportion averaged 44 to 15, with a large increase in the "neutral" response by those leaving during or at the end of the fourth year.

V. TO DO WHAT?

Nonstudents were asked in the year in which they became a nonstudent what their plans were for the coming year. Appendix M summarizes their responses. Very few students dropped out of school and were undecided about their plans for the next year: most indicated plans for full- or parttime work, and more education at the college level in the future. As might be expected, given the degree of investment of time and money in their education, the longer a student stayed in college before becoming a nonstudent the more likely that student was to have plans ultimately to resume enrollment in an institution of higher education.

VI. SUMMARY

WHO

Persisters and nonpersisters shared some characteristics – the size of their high school graduating class, the type of high school curriculum they had experienced, a career orientation as a reason for wanting to earn a college degree, a generally low degree of freshman year involvement in aspects of campus life, and a perception of the campus their first year as a relatively unsupportive environment. However, students who became nonpersisters had a combination of demographic, academic, and financial factors working against them which persisters did not share. They lived off campus and commuted to class. They had not been invested in their studies in high school and brought weak study habits with them to college, typically falling behind in reading, and not seeking out tutoring. They were not able to consider their parents as a major source of financial support, and had to find alternative sources of support. Those in the Representative Group typically used their wages to meet their college expenses. Those in the Black Group relied on scholarships. The interaction of these pressures, each serious in itself, created, by the spring semester of their freshman year, feelings of dissatisfaction, a lack of investment in their college experience, and a sense that they would not stay at UMCP until graduation.

WHEN

Most of the discontinued enrollment occurred the first two years of the study. The greatest number of students were academically dismissed after Year One; the greatest number withdrew from UMCP during or just after their second year. Students were more likely to withdraw at the end of a semester, after receiving their final grades, rather than during a semester.

WHY

The reasons given for leaving UMCP are a reflection of the pressures weighing on nonpersisters. For the Representative Group, financial considerations (e.g., inadequate financial resources; inability to manage requirements of both work environment and courses) and personal issues (e.g., illness/injury; uncertainty about personal goals; desire to enter the military) were primary reasons for leaving. For the Black Group, primary were financial considerations and academic issues (e.g., low grades; inadequate study skills/habits). Academic dismissals accounted for on the average about one third of the departures in both groups from UMCP across the years of the study.

Nonstudents in both groups thought changes in financial aid provisions would help students like themselves stay in school until graduation. In addition, nonstudents in both groups endorsed required student contact with an advisor as a policy that would facilitate student retention.

TO DO WHAT

Most of the students who left UMCP indicated that although employment was an immediate necessity, further education was a part of their future plans. This was particularly true for those who had invested several semesters in their academic work before their departure from the University.

VII. IMPLICATIONS

In consumer terms, a college education is an investment by the student in the mandate, the resources, and the community of a college or university. In turn, the admission of an individual into a degree program is an investment by the university, whose academic and financial health relies on students' progression through its degree programs and on students' subsequent accomplishments.

It is an unfortunate fact that many of the students who meet the selection criteria for admission to UMCP do not have the motivation, the foresight, or the personal, social, and/or academic skills needed to benefit from the college experience, and often also do not have the financial support to tolerate the expenses of academic failure. This report has shown that many of the students who were admitted in 1980 to a degree program at UMCP were not prepared to cope with the obstacles confronting them. They entered UMCP with a high expectation of doing well academically, albeit with poor high school preparation and a low high school class rank. Their low SAT scores indicate they didn't test well. They had not learned – or had not put into practice – good study habits. They fell behind in their work once in college. They didn't use the resources available to them. These are the students who did not persist. By the end of their freshman year at UMCP, they were psychological if not yet actual dropouts, reporting that the chance of their dropping out of college before graduation was high.

Of the reasons students gave for leaving the University, few were unrelated to the University. Illness, for example, or injury, or pressure from parents, spouse or children to leave school, are beyond the purview of the University. Most of the reasons given for leaving, however, were issues with which the University has agencies, programs, and resources to respond.

What becomes evident in considering the implications of the information contained in this report is that at issue is not just the fit between students' needs and the University's resources; rather, it is the interaction of needs and resources that is crucial. And that interaction is minimal, depending as it does for the most part on students to initiate. The assumption that all students not only are able to assess realistically their needs and capabilities in an academic setting but have done so, know where to go to correct self-deficits, and will initiate contact with the helping agencies or programs available to them, does not appear to be valid, particularly for the freshman year.

The present report has suggested that many of the students who left the University might have been able to remain until their graduation if they had received the benefits of existing programs or services at the University. This sad fact, together with the fact that very few students who left UMCP reported having discussed their decision with University personnel, underscores the importance of the need for personal contact with, and guidance from, adult members of the University community, faculty and staff.

It is important that students who leave the University for financial reasons have explored the options - and their limits -available through the Student Financial Aid Office and the campus employment services, before they leave.

It is important that students who leave for academic reasons have explored the tutoring options available on campus both within the academic departments and through agencies such as the Office of Minority Student Education (OMSE), the Learning Assistance Ser-

vice (LAS) of the Counseling Center, and the Intensive Educational Development Program (IED). It is important that they have discovered their options for where to learn study skills, and skills such as time management, which are related to coping successfully in and beyond an academic environment.

It is important that students whose main reason for leaving the University is not financial, academic, or beyond the realm of the University, have experienced the interaction and supportiveness of the University community.

Some students need help with realistic self-appraisal. Some need help discovering where to go to correct self-appraised deficits. Some, even if they have made a realistic self-appraisal and have an idea of the University's resources, do not initiate contact with the helping agencies and programs. The question confronting the University is the degree to which it can and should take a proactive stance in helping its students make realistic self-appraisals, raise their awareness of their options, and take advantage of these options.

STUDENTS would benefit from a letter shortly after their matriculation which discusses the relationship between certain pre- and post-matriculation characteristics and attrition, and describes agencies and resources on campus to help counteract the influences of these characteristics.

Further, students would benefit from an explicit contract with the University, which states that UMCP will provide support services that are designed to enable students to achieve their educational goals; and that students will explore and take advantage of the resources and support services UMCP has to offer.

PARENTS need to be considered by the University as resource and referral agents. Students were more likely to have discussed their decision to leave the University with their parents than with anyone else. The University should therefore consider providing parents with information concerning the University's remedial and support services, the withdrawal process, and other options available to the student, as well as with basic listening and counseling techniques.

Dependent commuters, or students who live with their parents and commute to campus, have been called the silent majority among the commuter population (Jacoby, 1983). When the dependent commuter is also a first generation college student, building parental identification with UMCP is particularly important. Parents should be apprised of the importance of being involved in the educational process of their child(ren). The University should systematically provide parents with guidance concerning the role parents can take in contributing to a home environment conducive to studying and learning. Communication with parents should be done at critical times during the semester, and should cover what to expect on the part of their student, what the critical points mean in terms of time and attention demands on the student, and what could be done to support the student at the various critical points.

UNIVERSITY POLICY-MAKERS should consider seriously the advantages of requiring advising contact, at least in the freshman year and probably in the sophomore year as well, and certainly for students earning less than a 2.0 grade point average. The advising contact would have as its focus, realistic self-appraisal, diagnosis of the student's barriers to academic success, and referral to the resources on campus available to help students confront these barriers. Students who lack the skills essential to academic success could be referred to services which would offer remedial support; students who have the skills but lack the motivation or disposition to apply themselves could be realistically confronted by the low chances of their persisting until graduation.

Policy-makers should also consider seriously some form of required interview with a University faculty or staff person, prior to a student's departure from the University, the purpose of which would be twofold: to offer information, guidance and support to the departing student, and to close the feedback loop between the University and its departing students. Because students are leaving without the benefit of such an interview, an exit interview must become a matter of University policy. At the University of Texas, for example,an "exit interview" is mandated, wherein departing students who have not completed an interview are not given their transcript –often required by transfer institutions and employers.

ACADEMIC DEPARTMENTS need to become increasingly aware of the benefit of early feedback to students on their academic performance. This report indicated that many incoming students have an unrealistically high expectation of how they will perform academically in college. This high expectation is unrelated to high school academic peformance. Many students left the University after seeing their final grades. Many more were academically dismissed. Had they received earlier feedback on their academic performance in their courses, remedial steps might have been taken in time to salvage the semester and their grade point average through modifying behaviors which were acting as barriers to academic success. While logistical difficulties in giving early feedback to students abound, the consequences of **not** doing so are severe both for the students and for the University.

Faculty members within each department also need to become alert to their role as referral agent for their students, and to prepare for that role both by becoming acquainted with the resources available to students on campus and by becoming increasingly sensitive to students in need of referral. While it has become popular to treat students as adults and not to invade their privacy, it is important that faculty recognize that for many students in academic jeopardy, a proactive approach may, in the long run, be more valuable to the student than a laissez faire attitude.

CAMPUS AGENCIES within the Division of Student Affairs need to ask themselves how they make themselves known both to referral agents on campus and to students, and consider what they cculd do to increase their visibility to both. Faculty and students typically are more aware of the existence and location of a campus counseling center than of its actual services and professional staffing (Johnson, Nelson, & Wooden, 1985). Budgetary allocations need to be made for advertising/outreach efforts, particularly for commuters, who typically are less likely than residents to be exposed to the campus grapevine as an information source.

Additionally, campus agencies need to have in place effective evaluation techniques in order to determine which of their programs and services should be modified, which should be continued in their present form, and what needs to be created, in order to be responsive to the diverse needs of the student body. And they need to take steps to maintain the human and material resources necessary to sustain their objectives and to close discrepancies between intention and actuality.

Within the Division of Student Affairs there are actions which specific agencies could take to help students stay in school. For instance, Resident Life might consider institutionalizing motivation to succeed through incentives such as rewards for the residents of residence hall floor's with the highest cumulative grade point average. At the risk of accusations of

in loco parentis, resident assistants could serve as a resource connection for students in academic jeopardy much as they do for students in emotional jeopardy.

Students who persist at the University, as well as those who do not, report low involvement in areas of campus life their freshman year. Campus Activities might consider the implications of the freshman year as a year of transition. Data discussed in this report suggest that students use the first year in college to work on academic, personal, and interpersonal issues. A proactive approach toward students, timed both for the **second semester of their first year and for the beginning of their second year,** would facilitate most effectively the blend of college commitment and academic competency that contributes to academic success and persistence.

VIII. CONCLUSIONS

The readers of this and other MLS Research Reports will undoubtedly see implications beyond those mentioned here. The Implications section is intended to be read as an openended section to provide, along with the material on which the Implications section relies, a basis for further thought and stimulation for discussion within the University community.

It is hoped that everyone within the University community will consider the importance of their interactions with students, particularly with students in their first and second years at UMCP. It is further hoped that the UMCP community will take the initiative in their interactions, particularly with students whose behaviors in and beyond the classroom indicate they are at risk of not persisting.

APPENDICES

APPENDIX A. PRE-MATRICULATION DEMOGRAPHIC CHARACTERISTICS

	Representative Group		Black Group	
	Persisters (n = 297)	Nonpersisters (n = 49)	Persisters (n = 137)	Nonpersisters (n = 52)
*Age at Matriculation	%	%	%	%
16 or less	.3	2	0	0
17	32	31	36	24
18	64	54	61	65
19	3	4	3	8
20	0	0	0	0
21	.3	0	0	0
22 or more	1	8	0	2
Ethnic Background				
white American	88	76		
black American	6	14		
Asian American	2	2		
Hispanic American	1	0		
Native American	.3	0		
Visa student	1	6		
immigrant	2	2		
*Father Education Level				
grammar school	2	4	8	14
some high school	4	10	8	10
high school grad.	12	21	25	22
some colege	13	15	23	20
college degree	38	29	20	16
post graduate work	30	21	16	16
*Mother Education Level				
grammar school	1	6	2	6
some high school	4	12	3	14
high school graduate	32	35	29	33
some college	23	23	29	18
college degree	30	17	24	18
post graduate work	10	6	13	10
*First Generation College Student				
No	86	75	77	63
yes	14	25	23	37
*High School Rating				
definitely below average	1	4	1	0
probably below average	4	10	2	6
about average	27	35	37	47
fairly high	40	35	37	47
high	27	15	28	12

	Representative Group		Black Group	
	Persisters	Nonpersisters	Persisters	Nonpersisters
*Size of high school graduation class	%	%	%	%
less than 49	2	4	2	0
50-99	3	6	8	12
100-299	21	21	24	25
300-499	38	40	30	35
500-699	21	27	31	21
700 or more	15	2	7	6
Why a bachelor's degree?				
college grads get better jobs	23	22	17	27
a coll. degree is the only way to enter my chosen career	29	22	32	24
parents/relatives expect me to	4	5	5	7
opportunity to meet and know many different people	3	2	0	2
coll. grads earn more money	6	8	8	5
to gain experience from extra-curricular activities	1	2	2	2
I am interested in ideas and the pursuit of knowledge	16	18	17	15
I must have a degree to enter grad or professional school	10	18	8	12
other	6	2	11	5
Why UMCP?				
Relatively inexpensive	26	6	12	17
geographic location	27	26	28	23
offered the kind of academic program I wanted	31	34	38	30
friends or relatives currently attend	2	0	4	4
friends or relatives previously attended	3	0	2	0
did not get accepted elsewhere	4	8	1	4
high school counselor or teacher suggested UMCP	2	6	3	6
parents wanted me to attend UMCP	4	13	6	8
financial aid provided by UMCP	2	6	6	8

Note: In this Summary Table as in the next five, percentages may not total 100 because of rounding off.

*variable used in subsequent discriminant analysis

APPENDIX B. PRE-MATRICULATION ACADEMIC CHARACTERISTICS

	Representative Group		Black Group	
	Persisters	*Nonpersisters*	*Persisters*	*Nonpersisters*
	%	%	%	%
***High School Grades**				
D	1	0	0	0
C	1	6	2	12
C+	6	10	12	16
B−	11	15	13	14
B	23	21	28	14
B+	30	17	28	33
A−	12	21	8	8
A/A+	18	10	8	2
***High School Rank**				
4th quarter	2	2	3	6
3rd quarter	6	20	8	25
2nd quarter	24	20	23	17
top quarter	32	29	27	25
top 10%	30	22	33	21
top 1%	6	9	5	6
High School Curriculum				
public h.s.: academic track	63	47	58	50
public h.s.: commercial	1	4	4	4
public h.s.: general	22	30	19	23
parochial	6	11	10	17
private	6	6	7	4
other	1	2	2	2
SAT Verbal	M=457	M=388	M=384	M=329
SAT Math	512	440	406	355
High School Habits:				
*turned in assignments on time				
rarely	0	2	2	0
sometimes	4	15	3	6
usually	41	44	36	59
always	55	40	59	35
*did homework at same time daily:				
rarely	23	19	24	28
sometimes	33	42	32	35
usually	38	29	35	35
always	6	10	9	4
*made careless mistakes on a test:				
rarely	15	15	10	20
sometimes	68	56	70	61
usually	14	25	14	10
always	2	4	5	8

	Representative Group		Black Group	
	Persisters	*Nonpersisters*	*Persisters*	*Nonpersisters*
	%	%	%	%
*kept desk or study place neat:				
rarely	26	17	14	8
sometimes	25	12	28	20
usually	34	40	30	33
always	15	31	28	39
*did extra credit work:				
rarely	28	19	22	20
sometimes	52	52	48	51
usually	16	17	21	14
always	4	12	9	14
*carefully went over diagram tables:				
rarely	20	12	16	16
sometimes	44	44	39	31
usually	30	35	36	47
always	7	8	9	6
*was too bored to study				
rarely	30	33	35	26
sometimes	50	46	55	51
usually	17	17	8	20
always	3	4	2	2
*had trouble concentrating:				
rarely	30	50	44	47
sometimes	59	40	49	43
usually	10	8	5	8
always	2	2	2	2
*studied with radio/TV on:				
rarely	34	31	24	14
sometimes	31	27	30	45
usually	21	25	34	20
always	14	17	12	20
*studied alone				
rarely	2	2	5	2
sometimes	6	21	15	20
usually	58	38	50	41
always	35	40	30	37
*failed to complete homework:				
rarely	68	58	71	59
sometimes	30	40	26	41
usually	2	0	2	0
always	0	2	1	0

*variable used in subsequent discriminant analysis

APPENDIX C. PRE-MATRICULATION FINANCIAL CHARACTERISTICS

	Representative Group		Black Group	
	Persisters	*Nonpersisters*	*Persisters*	*Nonpersisters*
	%	%	%	%
***Personal Income**				
none	9	2	22	19
less than $1,000	30	33	34	33
$1,000-3,999	53	50	40	35
$4,000-6,999	6	6	2	10
$7,000-9,999	1	2	0	0
$10,000+	1	6	2	2

	Representative Group		Black Group	
	Persisters	*Nonpersisters*	*Persisters*	*Nonpersisters*
	%	%	%	%
***Family Income**				
less than $10,000	1	4	9	15
$10,000-19,999	8	15	18	12
$20,000-29,999	16	22	19	17
$30,000-39,999	23	9	18	10
$40,000-49,999	19	13	9	10
$50,000+	19	15	9	8
unknown	14	22	19	27

*variable used in subsequent discriminant analysis

APPENDIX D. POST-MATRICULATION DEMOGRAPHIC CHARACTERISTICS

	Representative Group		Black Group	
	% Persisters	% Nonpersisters	% Persisters	% Nonpersisters
Residence Fall 1980				
with parents	51	53	42	52
UMCP or Greek housing	41	28	57	39
other off campus housing	8	19	2	8
Residence Spring 1981				
on campus	57	43	70	54
less than 3 miles away	9	18	4	2
3-5 miles	10	5	3	10
6-10 miles away	6	12	5	10
11-50 miles away	16	22	16	24
51+ miles away	1	0	2	0
Initial feelings about UMCP				
very mixed	8	18	6	2
somewhat mixed	29	27	26	33
fairly certain	31	33	31	33
very certain	32	22	37	31
Problems during transition				
being on own	18	12	20	20
adjusting to academics	35	27	47	35
dealing with bureaucracy	3	2	2	4
interpersonal issues	26	35	14	16
other	19	20	14	25
none; no difficulty	0	4	3	0
***Rate First Semester SOCIALLY**				
poorly	9	18	7	8
not as good as could have been	13	12	12	10
ok; average	19	12	24	20
better than expected	32	41	29	41
very well	26	14	28	16
other	0	2	1	4
not involved by choice	1	0	0	2
***Degree of support from Classes**				
almost none	12	17	16	19
little	26	37	24	26
some	51	37	41	30
much	10	9	17	23
very much	1	0	2	2
***Degree of Support from Faculty**				
almost none	23	35	27	34
little	37	20	35	26
some	30	37	32	28
much	10	6	5	8
very much	0	2	1	4
***Degree of Support from Staff**				
almost none	46	35	33	40
little	35	33	29	23
some	15	22	27	26
much	4	9	7	9
very much	0	2	4	2
***Degree of Support from Advisors**				
almost none	52	37	39	43
little	28	39	28	34
some	15	13	21	9
much	4	4	10	11
very much	1	7	3	4
***Degree of Support from Students**				
almost none	1	6	2	4
little	5	13	12	6
some	28	26	32	36
much	49	33	38	36
very much	17	22	16	17
***Degree of Involvement in Formal Academic Experiences**				
not at all involved	7	13	6	8
slightly involved	7	11	6	15
somewhat involved	32	30	32	34
much involved	36	22	39	23
very much involved	19	24	18	19
***Degree of Involvement in Interpersonal Relations With Students**				
not at all involved	6	9	4	4
slightly involved	10	22	8	26
somewhat involved	31	20	32	30
much involved	36	26	40	28
very much involved	17	24	16	13
***Degree of Involvement With Faculty/Staff**				
not at all involved	49	48	43	38
slightly involved	28	22	32	36
somewhat involved	19	20	17	17
much involved	4	9	6	9
very much involved	0	2	2	0

	Representative Group		Black Group	
	Persisters	Nonpersisters	Persisters	Nonpersisters
***Degree of Involvement With Work**				
not at all involved	47	42	41	25
slightly involved	14	11	10	13
somewhat involved	14	22	20	26
much involved	18	7	22	15
very much involved	8	18	7	21
***Degree of Involvement With Student Organizations**				
not at all involved	48	41	43	45
slightly involved	16	25	25	21
somewhat involved	18	18	18	25
much involved	13	5	8	9
very much involved	6	11	6	0
***Satisfied With College Experience**				
strongly disagree	1	9	2	4
disagree	12	20	15	19
neutral	21	22	32	32
agree	54	38	43	34
strongly agree	13	11	8	11
***Satisfied With Life in General**				
strongly disagree	2	4	3	8
disagree	8	16	11	13
neutral	15	18	24	32
agree	56	31	48	34
strongly agree	18	31	15	13
***Degree of Interactions With Nonstudents**				
almost none	22	11	24	12
little	23	24	32	27
somewhat	28	33	24	25
much	17	20	17	25
very much	10	13	4	10
***Change in Degree of Association With Students of Another Race**				
not at all	20	13	16	15
little	34	35	30	23
neutral	19	22	14	12
much	21	24	26	31
very much	6	6	13	19
Source of Friends				
same major field	8	11	4	18
same dorm, house, apt.	32	30	31	36
participate in same organizations	6	6	11	7
same high school, hometown	31	22	23	16
work in similar job	1	2	1	0
other	22	28	30	24
Group most closely identified with				
high school friends	23	20	20	13
family	6	10	14	18
house/apt members	5	13	5	2
dorm groups	26	23	23	18
formal campus club/group	2	3	2	0
Greek	8	2	1	2
informal friends	27	30	30	35
formal groups of friends	1	0	2	10
work	2	0	2	2
***Active in No Campus Activities**				
Yes	41	29	36	44
No	59	71	64	56
***Chances of Dropping Out Before Graduation**				
no chance	43	29	48	31
slight chance	43	29	40	38
good chance	12	27	11	19
very good chance	1	15	0	13
***Chances of Transferring**				
no chance	19	13	17	21
slight chance	40	27	35	17
good chance	33	42	35	46
very good chance	8	19	13	17
	M	M	M	M
Vocational Identity (MVS)	9.59	10.26	10.92	9.98

*variable used in subsequent discriminant analysis

APPENDIX E. POST-MATRICULATION ACADEMIC CHARACTERISTICS

	Representative Group		Black Group	
	Persisters	Nonpersisters	Persisters	Nonpersisters
	%	%	%	%
***Level of Educational Aspiration**				
BA	28	33	16	19
MA	31	12	24	21
Ph/EdD	7	2	7	2
Professional Degree	27	37	46	48
Other	2	8	2	0
no information	5	8	6	10
***Study Habits Freshman Year**				
almost always behind in reading	6	20	3	15
usually	18	15	16	15
sometimes	34	28	35	38
usually kept up	30	28	34	23
almost always	13	9	12	9
***Rate Fall Semester ACADEMICALLY**				
poorly	16	31	21	35
not as good as could have been	23	18	24	29
ok; average	21	14	27	14
better than expected	23	25	17	18
very well	17	10	12	2
other	0	2	0	2
***Essay Exams were:**				
very difficult	4	9	3	4
difficult	14	9	10	11
somewhat difficult	43	44	42	62
easy	33	30	38	19
very easy	6	9	7	4
***Objective Exams were:**				
very difficult	2	4	2	0
difficult	9	2	10	2
somewhat difficult	30	35	29	34
easy	46	44	49	57
very easy	14	15	10	6
***Term Papers were:**				
very difficult	12	9	7	8
difficult	21	24	22	17
somewhat difficult	47	52	46	53
easy	15	15	20	15
very easy	5	0	5	6
***Sought Tutoring**				
No	75	80	60	71
Some	25	20	40	29
Time of Declaration of Major				
not yet decided	22	25	15	22
before senior year high school	27	28	47	34
senior year high school	34	35	30	27
during freshman year	17	12	8	17
***Grade Point Average**	M	M	M	M
Fall 1980	2.59	1.88	2.15	1.37
Spring 1981	2.62	1.95	2.23	1.45

***variable used in subsequent discriminant analysis**

APPENDIX F. POST-MATRICULATION CHARACTERISTICS

	Representative Group		Black Group	
	Persisters	Nonpersisters	Persisters	Nonpersisters
	%	%	%	%
***Number of Hours Worked Fall Semester**				
none	57	58	60	54
1-20	36	31	32	36
21-40	7	11	8	10
Work Site: On Campus				
yes	10	4	22	19
no	90	96	78	81
***Sources of Financial Support:**				
*Self				
not	34	33	41	40
minor	50	33	49	38
major	16	33	10	21
*Parents				
not	8	23	15	23
minor	20	27	34	26
major	72	50	52	51
*Loans				
not	63	69	52	53
minor	11	2	14	13
major	26	29	34	34
*Scholarships				
not	72	65	25	30
minor	15	8	31	21
major	13	27	44	49

***variable used in subsequent discriminant analysis**

APPENDIX G. CLASSIFICATION RESULTS: DISCRIMINANT ANALYSIS

ACTUAL GROUP MEMBERSHIP	No. of cases	PREDICTED GROUP MEMBERSHIP			
		Persister		Nonpersister	
		n	%	n	%
Representative Group					
Persister	130	114	88	16	12
Nonpersister	44	11	25	33	75
Black Group					
Persister	225	191	85	34	15
Nonpersister	32	4	12	28	88

APPENDIX H. WHEN STUDENTS LEFT UMCP

	Representative Group	Black Group
Year I	n=21	n=18
immediately after registration F:80	1	1
during September 1980	0	1
during October 1980	0	1
during November 1980	0	0
December, prior to final exams	2	4
after seeing grades F:80	3	0
after registration for S:81	3	1
after seeing final grades S:81	6	7
missing data	6	3
Year II	n=29	n=29
immediately after registration F:81	1	3
during September 1981	2	1
during October 1981	1	2
during November 1981	2	1
December 1981 prior to final exams	0	3
at end of F:81 semester	6	7
after beginning of S:82	4	7
after seeing final grades S:82	11	5
missing data	2	0
Year III	n=19	n=14
immediately after F:82 registration	2	0
during September 1982	0	0
during October 1982	2	1
during November 1982	0	0
December 1982 prior to final exams	2	0
at end of F:82 semester	8	5
after beginning of S:83	1	1
during S:83 semester	3	3
missing data	1	4
Year IV	n=16	n=11
between end of S:83 and beginning of F:83	3	3
during F:83 semester	2	0
between F:83 and S:84 semesters	3	2
after S:84 semester began	1	0
Missing data	7	6

APPENDIX I. THE MOST IMPORTANT REASON GIVEN FOR LEAVING UMCP

	Representative Group					Black Group				
	'81	'82	'83	'84	TOTAL	'81	'82	'83	'84	TOTAL
FINANCIAL	**2**	**6**	**3**	**5**	**16**	**2**	**15**	**3**	**3**	**23**
inadequate financial resources	(2)	(5)	(3)	(5)		(2)	(14)	(3)	(3)	
inability to manage requirements of both work environment and courses		(1)					(1)			
ACADEMIC	**0**	**5**	**4**	**2**	**11**	**0**	**7**	**4**	**4**	**15**
low grades		(4)	(4)				(5)	(4)	(3)	
inadequate study skills/habits		(1)		(2)			(2)		(1)	
UNIVERSITY-RELATED	**1**	**5**	**1**	**4**	**11**	**3**	**4**	**0**	**2**	**9**
inability to enroll in desired courses		(1)	(1)	(1)			(1)			
dissatisfaction with major/department				(1)		(2)				
unsatisfactory social environment		(3)				(1)	(2)			
size of UMCP	(1)	(1)		(1)			(1)		(1)	
lack of encouragement from professors				(1)					(1)	
racial/ethnic tension										
"red tape"										
ENVIRONMENTAL PRESSURES					**0**				**1**	**1**
pressures from parents to leave									(1)	
pressures from spouse/children to leave										
commuting distance										
PERSONAL	**2**	**1**	**5**	**7**	**15**	**1**	**2**	**2**	**2**	**7**
illness/injury	(1)		(4)	(2)			(1)	(2)	(1)	
job offer			(1)							
uncertainty about personal goals	(1)					(1)				
desire to enter military				(3)					(1)	
uncertainty about value of college education		(1)					(1)			
deisre to travel				(2)						

APPENDIX J: NUMBER OF ACADEMIC DISMISSALS BY SEMESTER

Semester	Representative Group	Black Group
Fall 1980	0	0
Spring 1981	7	12
Fall 1981	1	5
Spring 1982	5	3
Fall 1982	5	3
Spring 1983	2	2
Fall 1983	3	2
Spring 1984	0	0

APPENDIX K: WHAT UMCP COULD DO DIFFERENTLY TO HELP STUDENTS STAY IN SCHOOL

(response frequencies)

	Representative Group	Black Group
provide more financial aid	26	40
make course requirements and grading procedures clearer	12	12
provide more opportunities for student/faculty contact	24	16
decrease the amount of "red tape"	26	19
require student contact with an academic advisor	30	27
provide more opportunity to secure on-campus housing	5	12
provide more access to counseling services	17	13
provide child-care services	2	3

APPENDIX L. DEPARTING STUDENTS' VIEW OF UMCP

	YEAR I		YEAR II		YEAR III		YEAR IV	
	Representative Group	Black Group	Representative Group	Black Group	Representative Group	Black Group	Representative Group	Black Group
	%	%	%	%	%	%	%	%
Very favorable	0	10	17	14	11	11	16	15
Favorable	54	40	42	29	44	43	58	15
Neutral	31	30	33	38	26	34	10	62
Unfavorable	8	20	8	18	15	9	16	8
Very unfavorable	8	0	0	4	4	3	0	0

APPENDIX M. NONSTUDENTS' PLANS FOR THE COMING YEAR

	YEAR I		YEAR II		YEAR III		YEAR IV	
	Representative Group	Black Group	Representative Group	Black Group	Representative Group	Black Group	Representative Group	Black Group
Work full time	7	4	10	11	15	15	10	5
Work part time	2	2	9	11	8	2	1	6
College full or part time	5	3	12	16	17	11	12	10
Care for home and/or family (full or part time	0	0	5	2	9	4	0	3
Other	3	3	3	2	3	3	0	0
Undecided	1	1	6	2	1	3	1	0

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MLS RESEARCH HIGHLIGHTS

Maryland Longitudinal Study

RESEARCH REPORT #9

THE ASTIN INDEX: ONE APPROACH TO PREDICTING PERSISTENCE AT UMCP FOUR YEARS AFTER INITIAL ENROLLMENT

EXECUTIVE SUMMARY

The purpose of this report is to ascertain the usefulness of the Astin Index—a statistical model for assessing "dropout-proneness"—in predicting persistence among UMCP students studies as part of the Maryland Longitudinal Study (MLS). The Astin Index is based on a survey of a large national sample of students who entered college in 1968. The Index is composed of 64 pre- and post college matriculation items that differentiated between students who persisted in higher education and those who did not.

The present study was designed around three major questions:

Question 1: How well do Astin Index scores (using nationally determined weights and the multiple regression statistical approach) differentiate between MLS students who persist at UMCP and those who do not?

This analysis tested how well Astin's national index weights have stood the test of time in differentiating between UMCP persisters and nonpersisters in the following race and gender categories: nonblack males, nonblack females, black males and black females. Statistically significant t-test results were found between persisters and nonpersisters in two of the four student categories. Black and nonblack female persisters had significantly different Astin Index means than nonpersisters in these groups.

Question 2: Among the four student groups (nonblack males, nonblack females, black males, and black females) how well do the Astin Index items (using locally determined weights and the discriminant analysis statistical procedure) predict UMCP enrollment four years after initial matriculation?

This question was answered using discriminant analysis and UMCP specific weights for the variables in Astin's predictive equation instead of nationally determined weights. The results of this analysis are in the form of the percentage of "hits and misses" or correct and incorrect predictions of persistence and nonpersistence among MLS persisters.

The Astin Index items proved to be far more accurate than chance in predicting retention four years after initial enrollment. The items were most successful in accurately predicting black female nonpersisters (85% accuracy) and nonblack male persisters (84% accuracy) and least successful in accurately predicting black male persisters and nonpersisters (74% accuracy each).

Question 3: Using locally determined weights, which items in the Astin Index contribute significantly to the prediction of persistence/nonpersistence at UMCP four years after initial enrollment?

This question was answered using the discriminant analysis procedure applied to the four student categories proposed by Astin.

For **nonblack males,** 17 of the Astin items in combination, contributed significantly to differentiating between fourth year MLS persisters and nonpersisters. High school academic variables, college expectations and freshman year employment were among the most influential items.

For **nonblack females,** 20 Astin items, especially those related to high school academics and study habits, as well as sources of financial support were significant in differentiating between persisters and nonpersisters.

For **black males,** only 10 of the Astin items were useful discriminators and none of these were the academic/cognitive type variables typically associated with persistence. Instead, expectations about college and hours of employment were more useful for this group.

Finally, for **black females,** 18 of the Astin items concerning college expectations, freshman place of residence and SAT scores were significant in distinguishing between students who persisted at UMCP and those who did not.

The report concludes by evaluating the Astin Index approach to the study of retention and suggests that the limited inclusion of both non-cognitive and post-matriculation type variables is a serious drawback to fully understanding college student persistence—especially for black students.

Maryland Longitudinal Study Steering Committee
Division of Student Affairs
The University of Maryland College Park
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The Maryland Longitudinal Study (MLS) is a research undertaking of the Division of Student Affairs at The University of Maryland College Park. A significant number of Student Affairs staff have been involved in the study since its inception. A Steering Committee appointed by the Vice Chancellor for Student Affairs has been responsible for the methodology, data collection and management of this project. These individuals are listed in Appendix A of the MLS report entitled **The Maryland Longitudinal Study—A Descriptive Overview: The Study's Purpose, Goals, Features, Participants, and Design.**

I. INTRODUCTION

BACKGROUND

Student persistence is one of the most highly researched topics in higher education. Thousands of studies on retention and attrition have been conducted at colleges and universities over the years (Lenning, 1982). In terms of national attrition rates, Tinto (1987) notes that more students leave their college or university prior to degree completion than stay. Cope & Hannah (1975) report nearly 40% of students drop out of college and that this figure has remained nearly constant for the past 100 years.

Some college students will drop out for a number of valid reasons: financial concerns, to transfer to another institution, to gain some alternative experiences in learning, to achieve personal goals that are unattainable in an academic setting, or perhaps to take advantage of a valuable career opportunity. Other students, however, will drop out despite their efforts to persist. This is particularly true of students who have not achieved a compatible "fit" with their academic institutions (Tinto, 1975). Students who have particular difficulty achieving fit in an academic environment may include part-time students, older students, commuters, as well as students from ethnic minority groups. With respect to the latter category of students, it is reported that black students drop out of predominantly white colleges and universities at a rate of about 50%, compared to a dropout rate of 41% among majority men and 31% among majority women (Astin, 1975b).

The rates of attrition of college students overall justifiably lead to questions of why students drop out and what variables relate to their departure from higher education. Aside from descriptive studies on retention and attrition rates, a number of studies have focused on specific variables associated with dropping out—as well as variables associated with remaining enrolled. Such investigations not only provide some understanding of the *nature* of retention, but also have implications for the *prediction* of which students are likely to leave either a particular institution or higher education in general. In combination, descriptive studies and knowledge of particular factors related to retention offer useful information for identifying "at-risk" students and for developing strategies geared to minimizing the number of dropouts at an institution.

Variables commonly associated with college student attrition and persistence include **academic factors** (i.e., high school grade point average, high school rank, scholastic aptitude scores and college grade point average) as well as **social integration factors,** that is, how satisfied or identified the student is with the institution. Social integration factors also include the extent of participation in student services and campus facilities, commitment to the institution, and faculty-student contact outside the classroom.

Some researchers have differentiated between **cognitive** or academic variables and **noncognitive** variables (e.g., first generation college students), and stress the importance of attending to the latter in understanding academic persistence.

How effective are academic as opposed to nonacademic variables in predicting persistence? In a review of the research on retention, which included more than 100 studies, Pantages & Creedon (1978) concluded that "academic factors are the most significant single predictors of attrition and the evidence suggests that these factors can account for half of the variance" (p. 93). This conclusion suggests that the more successful the student is academically, the greater his or her chance of persisting through college.

However, several studies indicate that causes for dropping out among black students may be different than for white students. The most outstanding research of this nature is illustrated by a series of studies by Tracey & Sedlacek (1984, 1985, 1987). These authors suggest that noncognitive variables may be more predictive than academic or cognitive variables of black student retention and academic performance. More specifically, their research shows that noncognitive variables relating to black student retention include the ability to understand and deal with racism, leadership experience, realistic self-appraisal, and valuing long-term as opposed to short-term goals.

Despite the many studies on retention, problems in methodology often occur, including use of a limited number of predictor variables, small sample sizes, and inconsistent definitions of withdrawal (Lea, Sedlacek, & Stewart, 1979). These methodological problems make overall interpretations of results difficult. Furthermore, earlier Maryland Longitudinal Study Research Highlights suggest *there is a need to look at differences in retention/attrition by race, as well as by sex.* Few studies include these variables as part of their analyses. In addition, another methodological problem common to retention studies is the lack of longitudinal designs. Because attrition is a phenomenon that takes place over time, longitudinal research permits the most accurate understanding of who persists in their college of matriculation, who transfers elsewhere, and who leaves higher education altogether.

Astin (1975b) reaffirmed the importance of longitudinal research in the study of attrition by observing that the "principal deficiency in most published research is the lack of a longitudinal design and the use of only one or a limited number of institutions" (p. 3). In an attempt to remedy these deficiencies, Astin surveyed a sample of some 240,000 freshmen from 358 colleges and universities across the United States, after they entered college in 1968, and determined their enrollment status (enrolled in higher education or not) four years later in the summer and fall of 1972.

This survey, the first large-scale research study of its kind, provided a statistical model for assessing "dropout-proneness" based on the responses of Astin's national sample. Astin employed multiple regression analysis to determine the probability that any given student or group of students would drop out of college. In his multiple regression analysis, each predictor variable (e.g., high school rank) was given a numerical weight that determined its relative magnitude or importance with respect to the other variables and to the criterion (i.e., dropping out or persisting in higher education). These predictor variables and their weights, in combination, became known as the *Astin Index.* This Index was designed to determine the probability (defined as chances in 100) of a student's dropping out of college.

THE ASTIN INDEX

Astin identified nine general categories of student background variables useful in predicting "dropout proneness." These categories are described below.

The first six categories are composed of prematriculation variables:

ACADEMIC BACKGROUND. This category includes variables related to academics: i.e., high school grades, rank in high school class, combined college admissions test scores (SAT-Verbal and SAT-Mathematics) and academic rating of high school (i.e., how students rate the academic quality of their high schools).

FAMILY BACKGROUND. The variables in this category include information on religion (family's and student's), parental education, race, whether or not the student has concerns about finances, and size of hometown.

EDUCATIONAL ASPIRATIONS. The variables in this category refer to the student's highest degree aspiration, i.e., whether the student aspired to earn a bachelor's degree or a higher degree such as master's, doctorate, or professional degree.

STUDY HABITS. This category includes a total of 11 items related to study habits in high school: doing homework, doing it at the same time every day, turning it in on time, making careless mistakes on a test, having trouble concentrating on assignments, being too bored to study, doing work for extra credit, studying with a radio or TV on, studying alone, keeping the study area neat, and going over diagrams and tables in the text.

EXPECTATIONS ABOUT COLLEGE. This category of variables asks students to estimate the chances that certain outcomes would occur, such as dropping out, transferring, getting married while in college, obtaining an overall GPA of A minus or better, graduating with honors, and being elected to an academic honor society.

OTHER CHARACTERISTICS. This category includes such variables as age, high school extracurricular activities, whether or not the student smoked cigarettes, or overslept and/or missed classes in high school, and the student's prediction of his or her marital status within a year after college.

The following three categories include post-matriculation variables considered important to college persistence:

SOURCE OF FINANCIAL SUPPORT. This category of variables asks students to indicate the degree of financial support they received during their freshman year from personal savings and/or employment, parental or other family aid, repayable loan, or a scholarship, grant or other gift.

EMPLOYMENT. Students were asked about their work status during the freshman year, including work site and number of hours of employment per week.

RESIDENCE. Variables in this category revealed whether students lived in a college dormitory, with their parents, or "other" during their freshman year.

In Astin's screening of variables, each analysis employed a dichotomous outcome variable: persister vs. dropout. Astin included stopouts, that is, students who interrupted their education for a period of time but who returned to higher education, in the dropout category because he found a high degree of similarity between the two in terms of their probabilities of dropping out.

Predictive equations based on the variables outlined above were developed by Astin for each of the following student subgroups: **nonblack men, nonblack women, blacks attending predominantly white institutions, and blacks attending predominantly black institutions.** Astin did not develop separate equations for black students based on their sex. Furthermore, he combined white students and nonblack minority students (i.e., Asians, etc.) because the small numbers of nonblack minorities made it difficult to perform separate analyses. In addition to white students, his nonblack sample was also comprised of Chicanos, Puerto Ricans, Asians, and American Indians. These ethnic minorities accounted for about 4% of the nonblack sample in Astin's original research.

The Astin Index provides a useful framework for investigating student attrition for a number of reasons. Both cognitive and noncognitive variables are included among his set of 64 questionnaire items. Consequently, the relative contribution of a group of cognitive variables (e.g., high school grade point average, high school rank, etc.) and a group of noncognitive variables (e.g., family religion, study habits, sources of financial support, etc.) can be assessed. Secondly, the Index provides different weights for different student subgroups, allowing for greater specificity and accuracy of prediction. Last, and perhaps most importantly, the use of the multiple regression analysis provides for a consideration of a set of variables *in combination* and optimally weighted, rather than viewing each variable in isolation. Ideally, this statistical procedure not only allows the examination of what sorts of differences exist between students prone to drop out and students likely to remain enrolled, but also provides insight into the *nature* of these differences.

Astin proposed that the Index be used in two ways: (a) to compute an Index score for each student (the probability of dropping out of higher education) based on "weights" (i.e., those numbers that determine the magnitude or importance of a given item or variable to the outcome criteria) derived from his large-scale, national study, and (b) to predict students' ultimate enrollment status (persister vs. nonpersister) based on weights derived from data from the students' local institution.

THE PURPOSE OF THIS REPORT

One purpose of this report is to ascertain the usefulness of the Astin Index in predicting persistence among UMCP students. This will be done in the two ways proposed by Astin and described above. First, the usefulness of Astin's national equation for differentiating between "persisters" and "nonpersisters" will be examined. This examination will also test how well the national index weights have stood the test of time (Astin's cohort group was initially enrolled in 1968 and follow-up analyses were conducted in 1972).

Next, this report will describe the results of a series of discriminant analyses. This statistical procedure employs institution-specific weights for the variables used in Astin's predictive equation instead of nationally determined weights. According to Tatsuoka (1970), using local data for weighting should provide more accuracy in determining outcomes (such as persistence/dropping) than weights derived elsewhere (e.g., Astin's national weights). These institution-specific weights will provide a prediction of the students' enrollment status four years after entering college which will be compared to the students' *actual enrollment status* at that time. The results of this analysis will be reported in the form of the percentage of "hits and misses" or correct and incorrect predictions of persistence and nonpersistence among the MLS student samples four years after their initial enrollment at UMCP.

Before reporting the results of these two different approaches to retention prediction, a brief description of the Maryland Longitudinal Study is appropriate.

THE MARYLAND LONGITUDINAL STUDY

The Maryland Longitudinal Study (MLS) is a five year study of 772 individuals who entered UMCP as first semester freshmen in the fall of 1980. For a complete description of the study, its purpose, goals, features, participants, and design, please refer to **MLS Research Report #1: A DESCRIPTIVE OVERVIEW.**[1]

As in other MLS Research Reports, the population discussed in this report is *not* the entire initial population of 772 participants. ONLY MLS PARTICIPANTS WHOSE FOURTH YEAR ENROLLMENT STATUS WAS KNOWN TO MLS WERE STUDIED FOR THIS REPORT. In other words, initial participants who subsequently dropped out of the study or who were uncontactable at the fourth year data collection period in the spring of 1984 were excluded from the present analyses.

This report describes four student groups largely consistent with Astin's categories (although the present analysis considers black students separately by sex): nonblack males, nonblack females, black males, and black females. "Nonblack" students include all MLS participants who were *not* American blacks. The nonblack groups there include white college students, as well as a small percentage of nonblack minority participants. "Black" students include all black participants in MLS.

Rather than investigating persistence of MLS students in higher education in general (as in Astin's study), this report looks specifically at *student persistence at The University of Maryland College Park (UMCP).* Consequently, PERSISTERS in this study are defined as:

(1) Students who reported during interviews conducted in the Spring of the fourth year after initial matriculation, that they were enrolled at the University; or

(2) Students who had earned their baccalaureate degree.

NONPERSISTERS are defined as:

(1) Students who reported during interviews conducted in the Spring of the fourth year after initial matriculation that they were not enrolled either at the University of Maryland College Park or at another institution of higher education; or

(2) Students who transferred to another college or university some time after their first year and had not returned to UMCP by the fourth year after initial enrollment.

II. RESULTS

To evaluate the usefulness of the Astin Index variables in predicting persistence/nonpersistence among UMCP students, three major questions will be addressed in this report.

Question 1: How well do Astin Index *scores* (using nationally determined weights and the multiple regression statistical approach) differentiate between MLS students who persist at UMCP and those who do not?

Based on Astin's race and gender (when available)[2] student categories (nonblack males, nonblack females, black males, and black females) four comparisons will be made, comparing average (mean) Index scores for persisters and nonpersisters in each of the categories.

Table 1 shows the means, standard deviations, and t-values of MLS students' Astin Index scores[3] for each of the four student groups. T-values were used to determine if statistically significant differences existed between the Index means of persisters versus nonpersisters.

As noted in Table 1, there were significant differences between persisters and nonpersisters on the Astin Index means for two of the four student groups: nonblack females ($p < .001$) and black females ($p < .0001$). Nonpersisters had higher Index scores than persisters. While Astin Index mean scores for male (black and nonblack) nonpersisters were higher than for persisters—indicating greater dropout proneness—these differences were not statistically significant at the .05 level.

Thus despite the fact that a span of some fifteen years has passed since Astin's research was initially conducted, it can be concluded that the Astin Index scores, using the original weights derived from his national sample, were notably useful in determining significant differences between black and nonblack **female** persisters and nonpersisters. However, these dated national weights were least useful for differentiating between black and nonblack **male** persisters and nonpersisters.

TABLE 1

ASTIN INDEX SCORE MEANS BY FOURTH YEAR ENROLLMENT STATUS

Student Group	Status	Mean Index Score*	Standard Deviation	t Value
Nonblack Males	Persister	25.6	20.8	– 1.57
	Nonpersister	31.6	21.3	(n.s.)
Nonblack Females	Persister	30.0	19.4	– 2.52
	Nonpersister	38.8	20.7	($p < .001$)
Black Males	Persister	25.8	22.2	.60
	Nonpersister	29.5	29.5	(n.s.)
Black Females	Persister	10.8	22.6	– 3.27
	Nonpersister	26.0	24.8	($p < .0001$)

***See End Note #3.**

Question 2: Among the four student groups (nonblack males, nonblack females, black males, and black females) how well do the Astin Index *variables* (using locally determined weights and the discriminant analysis statistical procedure) predict UMCP enrollment four years after initial matriculation?

To answer this question, the statistical procedure discriminant analysis was used. As with multiple regression, discriminant analysis considers the interaction of a number of variables at the same time and how this interaction relates to an outcome criterion. In this case, discriminant analysis uses the Astin Index variables to predict a student's membership in one of two categories: **persister** or **nonpersister** four years after initial enrollment. In contrast, the multiple regression procedure as noted above, when used with a student's responses to Astin Index variables and nationally determined weights, produces an indication of "dropout-proneness" by computing the chances in 100 of an individual student dropping out. In that analysis, the "chances" were averaged together by student category and significant differences between persisters and nonpersisters were determined using t-tests. In deciding between the two procedures, we concluded that since our primary interest was aggregate data (e.g., establishing patterns of characteristics associated with students' persistence at UMCP) instead of individual prediction, discriminant analysis was a more appropriate and statistically powerful way to use Astin's original items. This was also the approach adopted in **MLS Research Report #5: Students Who Become Nonpersisters** which considers a broader range of student characteristics than the present report.

Table 2 illustrates the percentage of accurate predictions (number of "hits") of fourth year enrollment status for the four student groups: nonblack males, nonblack females, black males, and black females, based on students' responses to the Astin Index variables.

TABLE 2

PERCENTAGE OF ACCURATE PREDICTIONS OF ENROLLMENT STATUS FOUR YEARS AFTER INITIAL ENROLLMENT AMONG FOUR STUDENT GROUPS

	STUDENT GROUPS			
ENROLLMENT STATUS	Nonblack Males	Nonblack Females	Black Males	Black Females
Persister	84%	77%	74%	74%
Nonpersister	79%	80%	74%	85%

As the figures in Table 2 indicate, the percentage of accurate predictions provided by the interactions of the Astin Index items proved to be far more accurate than chance (50/50) in predicting the enrollment status of all four subgroups four years after initial enrollment. The Astin Index items were most successful in accurately predicting black female nonpersisters (85% accuracy), and nonblack male persisters (84% accuracy), and least successful in accurately predicting black male persisters and nonpersisters (74% accuracy each). However, the number of black male persisters and nonpersisters in Year Four was so small that some of the statistical limitations of discriminant analysis procedure were approached which may have adversely affected the results for those groups.

More specifically, a requirement in the use of discriminant analysis is that the group size should be at least **twice** the number of variables used in the discriminant analysis (n = 64). While the size of three of the four student groups was larger than 128 (64 times 2) in Year Four, the number of black males (persisters and nonpersisters combined) was only 76.

A second limitation in the use of discriminant analysis is that the size of the smallest category (such as "persister" or "nonpersister") should be no less than the number of variables used. This was not true for any of the student types, where in all cases the size of the smallest category was less than the number of variables in the Index (n = 64).

Consequently, the sensitivity of the Astin Index as a predictor of fourth year enrollment status was probably decreased by the small numbers, particularly for black males.

Question 3: Using locally determined weights, what *variables* in the Astin Index contribute significantly to the prediction of persistence/nonpersistence at UMCP four years after initial enrollment?

Appendix I presents the items used in the Astin Index. Appendix II identifies the means and standard deviations obtained by persisters and nonpersisters to the items which predicted persistence/nonpersistence. What follows is a summary of that second appendix.

NONBLACK MALES

Using the discriminant analysis procedure, of the 64 variables in the Astin Index, 17 variables contributed significantly to the differentiation between fourth year persisters and nonpersisters among nonblack males. Three categories of variables were most influential in differentiating between persisters and nonpersisters in this group: high school academic variables, college expectations, and freshman year employment.

NONBLACK FEMALES

Of the 64 variables in the Astin Index, 20 contributed significantly to the differentiation between persisters and nonpersisters four years after initial enrollment for nonblack females. The three categories most influential in differentiating persisters and nonpersisters were high school academic variables, sources of financial support, and high school study habits.

BLACK MALES

Only 10 of the 64 Astin Index variables contributed significantly to the differentiation between persisters and nonpersisters four years after initial enrollment for black males. Bear in mind that the numbers were smallest for this student group, which may have decreased the sensitivity of the Astin Index items in discriminating

between future persisters and nonpersisters. Recall, Table 2 also indicated that the percentage of accurate predictions of persisters and nonpersisters was lowest for black males using the nationally determined weights and the multiple regression technique. Thus either both statistical procedures are adversely effected by the small subgroup size or the items used in the Index (no matter how they are treated statistically) are not as useful in predicting retention in black males as the other groups.

With these cautions in mind, what is interesting about the variables which predicted membership in the "persister" or "nonpersister" category for black males is that none of the variables were related to high school academics, high school study habits, or educational aspirations—cognitive variables usually associated with the prediction of higher education persistence/attrition. Where black male persisters and nonpersisters did differ significantly was in two **noncognitive** or nonacademic variables: expectations about college—e.g., nonpersisters were more likely to indicate that they might drop out temporarily or transfer before graduating; and in hours of employment—e.g., nonpersisters worked a greater number of hours per week than did persisters. These findings offer support for Sedlacek's (1987) claim that noncognitive variables are of primary importance in understanding minority student persistence.

LACK FEMALES

Eighteen of the 64 variables in the Astin Index contributed significantly to the differentiation between persisters and nonpersisters in this group four years after initial enrollment. The category of variables concerning college expectations was most influential in predicting fourth year enrollment status for black females: five of the six variables in this category contributed significantly to the prediction. In addition, the black female group was the only subgroup for which freshman residence status was a predictor variable of fourth year enrollment status. In addition, combined SAT scores predicted significantly only for the black female subgroup.

III. SUMMARY AND CONCLUSIONS

The purpose of the present report was to test the efficacy of the Astin Index as a means of studying persistence and nonpersistence of MLS participants at UMCP four years after their initial enrollment. The Astin Index was used to predict fourth year enrollment status, first with Astin's national index weights (using Astin's original technique of multiple regression); and then with local weights (using Astin's items in a discriminant analysis) based on MLS data. The first investigation used multiple regression analysis to determine "dropout-proneness," or the probability (chances in 100) that a student would drop out of college. The second investigation used discriminant analysis, with fourth year enrollment status (persister vs. nonpersister) as the outcome variable.

The Astin Index scores, using nationally determined weights and the multiple regression approach, successfully differentiated between MLS black and nonblack **females** who persisted at UMCP and those who did not. The Index was less successful in differentiating between persisters and nonpersisters among black and nonblack **males.** The data suggest, therefore, that since the Astin Index is *primarily* composed of prematriculation type variables prematriculation variables may be more useful in predicting persistence (at UMCP) for females than for males, regardless of race. Thus if the purpose of the Astin Index is to ascertain the impact of mostly prematriculation variables on a **male** student's chances of dropping out before graduation, these data suggest that the Index, using nationally determined weights, has little practical utility.

In the second analysis, the *variables* contained within the Astin Index, when used with *institution specific weights* and discriminant analysis, most successfully predicted UMCP enrollment four years after matriculation for **black females** and for **nonblack males.** In terms of the first finding concerning the prediction of retention for black students, these results suggest that the nationally determined weights offered by Astin for "blacks in white colleges" should have been classified by sex (as was done with the nonblack group). By not having done so, information concerning the predictive power of the Index for black students—particularly for black males—is reduced. In addition to the need for a sex specific set of regression weights for black males and females, these results (and the ones above using the national weights) imply that more attention should be paid to post-matriculation variables when studying student persistence.

Indeed, as can be seen in **MLS Research Report #4: Students Who Become Nonstudents,** it is helpful to consider **the interaction of pre- and post-matriculation characteristics.** For example, the impact of insufficient finances and the need to work while in school on students' decisions to drop out of UMCP has been repeatedly documented in this and other MLS reports. In addition, considering pre- and post-matriculation characteristics may help explain the inconsistencies in retention prediction for nonblack females. Recall in the first analysis, Astin's largely pre-matriculation variables were more successful with females than males (regardless of race); in the second analysis, the retention of nonblack females was not as accurately predicted as the retention of black females (or nonblack males). Adding more post-matriculation variables such as place of residence after the freshman year or academic major may improve our understanding of why nonblack women leave UMCP.

Because of the tremendous personal and financial costs borne by the individual and the institution when a student drops out of higher education there is an intuitive appeal to be able to predict dropout proneness in college applicants—especially if the predictive device comes in the form of a single, easy to administer and score paper/pencil index. As observed by Astin (1975), such an index could have many beneficial uses including the determination of policies concerning recruitment and admissions, financial aid, residence hall placements and on-campus employment for students. In addition, an index could aid high school students and guidance counselors in identifying students who come to higher education "at risk" of dropping out and thus proactively initiate retention interventions.

However, as useful and appealing a predictive index of dropout proneness in college applicants might be, the differences found among the four student groups (black males, black females, nonblack males and nonblack females) studied here suggest the value, indeed the necessity, of looking at student race and gender, as well as at pre- and post-matriculation variables when creating such an index or measure. Furthermore, among the pre-matriculation variables included in a predictive instrument, noncognitive as well as cognitive variables should be incorporated to improve the predictive accuracy for black students. Thus while it may be useful to be able to predict the probability of success in higher education and, as a result, be purposeful in developing responsive programs and policies, the problems noted above with the Astin index suggest that educators use this particular instrument only with caution.

Finally, even if the current Astin index were revised taking into account the issues noted above or a new predictive instrument developed, at least one problem still remains. Given the mission of many colleges and universities to be open to a broad spectrum of the citizenry, such a predictive index might be perceived as discriminatory or responsible for discouraging students with poor predictive scores of attempting higher education. Indeed, despite negative predictions and characteristics, many students "beat the odds" and succeed in higher education. Thus while this report suggests that improvements should be made in predictive indices such as Astin's (e.g., incorporating race, gender, pre- and post-matriculation characteristics), their use with individual students may raise important ethical concerns that should not be overlooked.

APPENDIX I

ASTIN INDEX SURVEY ITEMS

1. Your AVERAGE high school grade was:
   1. D
   2. C
   3. C+
   4. B−
   5. B
   6. B+
   7. A−
   8. A or A+

2. Your RANK in your high school class was:
   1. Fourth quarter
   2. Third quarter
   3. Second quarter
   4. Top quarter
   5. Top 10%
   6. Top 1%

3. Rate your high school ACADEMICALLY:
   1. Definitely below average
   2. Probably below average
   3. About average
   4. Fairly high
   5. Very high

FAMILY BACKGROUND

4. Religion reared in - Protestant
   1. No
   2. Yes

5. Religion reared in - Catholic
   1. No
   2. Yes

6. Religion reared in - Jewish
   1. No
   2. Yes

7. Religion reared in - Other
   1. No
   2. Yes

8. Religion reared in - None
   1. No
   2. Yes

9. Religion *now* - Protestant
   1. No
   2. Yes

10. Religion *now* - Catholic
    1. No
    2. Yes

11. Religion *now* - Jewish
    1. No
    2. Yes

12. Religion *now* - Other
    1. No
    2. Yes

13. Religion *now* - None
    1. No
    2. Yes

14. Father's education:
    1. Grammer school (junior high) or less
    2. Some high school
    3. High school graduate
    4. Some college
    5. College graduate
    6. Postgraduate degree

15. Mother's education:
    1. Grammar school (junior high) or less
    2. Some high school
    3. High school graduate
    4. Some college
    5. College graduate
    6. Postgraduate degree

16. How concerned are you about finances?
    1. Not concerned
    2. Somewhat concerned
    3. Major concern

17. Race - Oriental
    1. No
    2. Yes

18. Race - Other
    1. No
    2. Yes

19. Lived on a farm most of time growing up:
    1. No
    2. Yes

20. Lived in a small town most of time growing up:
    1. No
    2. Yes

21. Lived in a moderate size city or town most of time growing up:
    1. No
    2. Yes

EDUCATIONAL ASPIRATIONS

22. Highest degree planned - Bachelor's
    1. No
    2. Yes

23. Highest degree planned - Master's
    1. No
    2. Yes

24. Highest degree planned - Ph.D. or Ed.D.
    1. No
    2. Yes

25. Highest degree planned - Professional
    1. No
    2. Yes

26. Highest degree planned - Other
    1. No
    2. Yes

27. Expect to be an engineer:
    1. No
    2. Yes

STUDY HABITS DURING YOUR SENIOR YEAR IN HIGH SCHOOL

1	2	3	4
Rarely or Never	Sometimes	Usually	Always

Use any number between 1 and 4 to indicate your response.

28. _____Turned in assigned work on time
29. _____Did homework at the same time every day
30. _____Made careless mistakes on a test
31. _____Kept desk or study place neat
32. _____Did extra-credit work
33. _____Carefully went over diagrams or tables in textbook
34. _____Was too bored to study
35. _____Had trouble concentrating on assignments
36. _____Studied with radio or record player on
37. _____Studied alone
38. _____Failed to complete a homework assignment on time

EXPECTATIONS ABOUT COLLEGE

1	2	3	4
No Chance	Very Little Chance	Some Chance	Very Good Chance

Use any number between 1 and 4 to indicate your response.

QUESTION: What is your BEST guess as to the chances that you will:

39. _____Drop out temporarily
40. _____Transfer before graduating
41. _____Get married while in college
42. _____Obtain overall GPA of A– or better
43. _____Graduate with honors
44. _____Be elected to an academic honor society

OTHER STUDENT CHARACTERISTICS

45. Sex:
    1. Male
    2. Female

46. Age at college entry:
    1. 16 or younger
    2. 17
    3. 18
    4. 19
    5. 20
    6. 21
    7. Older than 21

47. Smoked cigarettes in high school:
    1. Not at all
    2. Occasionally
    3. Frequently

48. Won varsity letter in high school:
    1. No
    2. Yes

49. Married when entering college:
    1. No
    2. Yes

50. Overslept and missed a class or appointment in high school:
    1. Not at all
    2. Occasionally
    3. Frequently

51. Estimate chance of marrying within a year after college:
    1. No chance
    2. Very little chance
    3. Some chance
    4. Very good chance

SOURCES OF FINANCIAL AID DURING FRESHMAN YEAR

52. Personal savings and/or employment:
    1. Not a source
    2. Minor support
    3. Major support

53. Parental or other family aid:
    1. Not a source
    2. Minor support
    3. Major support

54. Repayable loan:
    1. Not a source
    2. Minor support
    3. Major support

55. Scholarship, grant or other gift:
    1. Not a source
    2. Minor support
    3. Major support

WORK STATUS DURING FRESHMAN YEAR

56. Federally sponsored work-study:
    1. No
    2. Yes

57. Other on-campus work:
    1. No
    2. Yes

58. Off-campus work:
    1. No
    2. Yes

59. Employment for college credit as part of departmental program:
    1. No
    2. Yes

60. Number of hours worked per week:
    1. Fewer than 5
    2. 5 - 9
    3. 10 - 14
    4. 15 - 19
    5. 20 - 24
    6. 25 or more

PLACE OF RESIDENCE DURING FRESHMAN YEAR

61. College dormitory:
    1. No
    2. Yes

62. With parents:
    1. No
    2. Yes

63. Other residence:
    1. No
    2. Yes

(*Note:* The 64th item of the Index is the combined SAT math and verbal score.)

APPENDIX II

ASTIN INDEX PREDICTOR VARIABLES BY GROUP
(with means and standard deviations)

	NONBLACK MEN		NONBLACK WOMEN		BLACK MEN		BLACK WOMEN	
	Persister	Nonpersister	Persister	Nonpersister	Persister	Nonpersister	Persister	Nonpersister
STUDENT BACKGROUND VARIABLES								
ACADEMIC VARIABLES (higher scores indicate high levels and ratings)								
High school grade point averages							5.65 (1.26)	4.57 (1.0)
High school rank	5.55 (.99)	5.21 (1.13)	4.10 (1.66)	.72 (1.22)				
High school rating	4.04 (.83)	3.71 (.94)	3.82 (.98)	3.50 (1.04)				
Combined SAT scores							842 (185)	725 (135)
FAMILY BACKGROUND VARIABLES (1 = no; 2 = yes)								
Family religion: Catholic			1.31 (.46)	1.40 (.49)	1.19 (.40)	1.33 (.47)		
Family religion: Jewish	1.22 (.41)	1.09 (.30)			1.00 (.00)	1.01 (.02)		
Present religion: Catholic			1.27 (.44)	1.42 (.50)				
Present religion: Other			1.09 (.28)	1.06 (.24)			1.41 (.49)	1.45 (.49)
Race: Oriental							1.02 (.13)	1.00 (.00)
Race: Other			1.78 (.41)	1.90 (.30)	1.88 (.00)	1.97 (.00)		
Raised on farm	1.04 (.20)	1.00 (.00)	1.04 (.20)	1.02 (.14)				
Raised in small town			1.23 (.42)	1.38 (.49)				
Mother's education (higher scores indicate higher levels)	3.95 (1.16)	3.50 (1.15)			4.40 (1.04)	3.97 (1.66)	3.96 (.50)	3.60 (.49)
Concern about finances (1 = none; 3 = major)	2.21 (.63)	2.43 (.55)	2.14 (.57)	2.28 (.64)			2.43 (.64)	2.59 (.54)
EDUCATIONAL ASPIRATIONS								
Highest degree planned Bachelor's (1 = no; 2 = yes)			1.35 (.47)	1.34 (.48)				
Ph.D. or Ed.D.	1.14 (.35)	1.20 (.40)					1.25 (.43)	1.22 (.40)
Expect to be an engineer							1.11 (.30)	1.10 (.28)
STUDY HABITS DURING SENIOR YEAR IN HIGH SCHOOL (1 = Rarely or Never; 2 = Sometimes; 3 = Usually; 4 = Always)								
Made careless mistakes on tests			1.94 (.64)	2.12 (.63)				
Carefully went over diagrams or tables			2.18 (.80)	2.12 (.80)				

	NONBLACK MEN		NONBLACK WOMEN		BLACK MEN		BLACK WOMEN	
	Persister	Nonpersister	Persister	Nonpersister	Persister	Nonpersister	Persister	Nonpersister
STUDY HABITS (cont.)								
Was too bored to study	2.09 (.77)	1.98 (.81)					1.65 (.57)	1.81 (.57)
Had trouble concentrating on assignments			1.82 (.67)	1.70 (.68)			1.55 (.50)	1.76 (.52)
Studied with radio or record player on			1.93 (.95)	2.18 (1.10)				
Studied alone			3.20 (.65)	3.06 (.77)				
Failed to complete homework assignments on time	1.41 (.53)	1.57 (.74)					1.23 (.46)	1.30 (.51)
EXPECTATIONS ABOUT COLLEGE (1 = No Chance; 2 = Very Little Chance; 3 = Some Chance; 4 = Very Good Chance)								
Drop out temporarily	1.79 (.72)	2.14 (.92)			1.59 (.66)	2.08 (1.02)	1.70 (.74)	2.15 (.78)
Transfer before graduating	2.27 (.80)	2.74 (1.01)	2.29 (.93)	2.89 (1.0)	2.34 (.78)	2.84 (1.10)		
Get married while in college	1.69 (.00)	1.89 (.15)			1.66 (.72)	1.61 (.85)	1.68 (.81)	1.93 (.99)
Obtain overall GPA of A– or better							2.49 (.70)	2.40 (.70)
Graduate with honors	2.48 (.80)	2.19 (.92)						
Be elected to an academic honor society							2.49 (.60)	2.16 (.75)
OTHER STUDENT CHARACTERISTICS								
Smoked cigarettes in high school (1 = Not at All; 2 = Occasionally; 3 = Frequently)					1.12 (.33)	1.21 (.59)		
Overslept and/or missed class or appointment in high school (1 = Not at All; 2 = Occasionally; 3 = Frequently)	1.45 (.56)	1.38 (.49)	1.47 (.57)	1.42				
POSTMATRICULATION VARIABLES								
FINANCIAL AID DURING FRESHMAN YEAR (1 = Not a Source; 2 = Minor Source; 3 = Major Source)								
Personal savings and/or employment			2.14 (.62)	2.28 (.74)				
Parental or other family aid	2.55 (.66)	2.54 (.74)					2.28 (.73)	2.89 (.72)
Repayable loan					1.88 (.92)	1.92 (.92)		
Scholarship, grant or other gift			1.39 (.71)	1.52 (.76)				

	NONBLACK MEN		NONBLACK WOMEN		BLACK MEN		BLACK WOMEN	
	Persister	Nonpersister	Persister	Nonpersister	Persister	Nonpersister	Persister	Nonpersister
WORK STATUS DURING FRESHMAN YEAR (1 = no; 2 = yes)								
Federally sponsored work study	1.03 (.18)	1.03 (.00)						
Other on-campus work	1.09 (.29)	1.07 (.26)	1.12 (.32)	1.10 (.30)				
Employment for credit							1.05 (.22)	1.00 (.00)
Number of hours per week (higher scores indicate greater number of hours)					2.51 (1.63)	3.07 (1.60)		
PLACE OF RESIDENCE DURING FRESHMAN YEAR (1 = no; 2 = yes)								
College dormitory							1.78 (.41)	1.66 (.46)

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END NOTES

1. To obtain a copy of other MLS Research Highlights, write: Maryland Longitudinal Study, The University of Maryland, 2108 North Administration Building, College Park, Maryland 20742, or telephone (301) 454-2925.

2. Because Astin did not provide separate nationally determined weights for black males and females (in white colleges), the *same* Astin weights were used for black males and black females.

3. According to Astin (1975), computed Index scores yield the probability out of 100 of students dropping out of college; however, the computed Index scores obtained by MLS students ranged into negative values, making this interpretation impossible. These negative values were particularly noted among the Index Scores of black women in the MLS study.